Canadian Journal of
PUBLIC HEALTH
VOLUME 47 TORONTO, JUNE 1956 NUMBER 6

Medical Care of Canada's Indians and Eskimos

P. E. MOORE, M.D., D.P.H.
Director, Indian and Northern Health Services
Department of National Health and Welfare
Ottawa, Canada

WHEN the Europeans came to the New World they found it populated. The earliest records of any explorers having crossed the Atlantic to the westward, are those of Leif Ericsson and his Norsemen, who found Eskimos in Greenland and the northeastern Arctic regions. About 400 years later, Columbus found the new land inhabited by people with reddish-brown skins. Thinking he had discovered a new route to India, he surmised that these people were Indians and this name American "Indians" has been retained, while the name "Eskimo" has been given to the somewhat different race that populates the Arctic regions of North America. Anthropologists tell us that this native population came to America in successive migrations in prehistoric times from northern Asia, probably by way of the Bering Sea.

The Canadian Indians are not a homogenous group, but are divided into a number of basic language groups that are, in turn, subdivided into tribes with local dialects.

At the time of the first European settlements in North America about four centuries ago, the Indian population of what is now Canada was, according to the best estimates of anthropologists, about 200,000. Shortly after the advent of the Europeans, the Indian population started to decline, and continued to dwindle until it became a common belief that the Indians were a dying race.

The Eskimos are believed to be a somewhat later migration, although recent discoveries would indicate that there was a similar race occupying the Arctic Islands as long as 20,000 years ago. There is little evidence to support any premise that there were, at any time, more than about 10,000 Eskimos in the Canadian Arctic and, in round figures, that is the present Eskimo population, while the Indian population which had fallen to approximately 80,000 before the turn of the century, now is estimated at 153,000.

Those who were entrusted with British colonial administration took a different view of native relations and to Britain belongs the credit of first admitting an inherent aboriginal interest in the soil, to be cancelled only by negotiation with the Indians. As early as 1670, during the reign of Charles II, instructions were given to the governors of the colonies, directing that Indians who desired to place themselves under Britain should be well received and protected.

That was the bright side. There was a dark one. Generally whenever new countries are opened up, disease and degradation will be found. These the Indians encountered. Truly the missionary was early on the scene as a friend and helper. A friend also was the government official, who appeared first as a military medical officer and latterly as a civil servant. There came also the vanguard of adventurers, trading into the Hudson's Bay or anywhere else where money was to be made in the fur trade, with the Indians hunting the fur; and the trader with the strongest firewater obtaining the best furs. Thus in their first experience with the white man and his ways, the Indians tended to sicken and deteriorate. As colonization proceeded they began to leave the healthy tepees and became shack and cabin dwellers. Of sanitation they knew nothing. They fell a prey to tuberculosis, smallpox and other maladies hitherto unknown to them.

Approximately 80,000 Indians live in settled parts of the country, and the remainder are wanderers or semi-roving people who live by trapping, hunting and fishing. All the Eskimos are hunters. There are no concentrations of population, largely owing to the fact that the food supply available by hunting and fishing is such that they are forced to disperse themselves over practically the whole of Canada's northern territories. The unit of population among Eskimos is the family, whereas among the Indians it is the band.

There are many health problems which are peculiar to these Services. The poorer the health conditions, the more apathetic are the people. Ignorance and superstition and unwillingness to accept treatment are features among more remote Bands, but on the whole both Indians and Eskimos have come to respect and ask for "white man's medicine".

Until 1952 tuberculosis was the leading cause of death among Canadian Indians and the death rate from this disease has been from ten to fifteen times as high as that among the white population. In 1952 tuberculosis dropped to second position, in 1953 to fourth place and in 1954 to eighth place as a leading cause of death.

Infant mortality is high and epidemic diseases take an annual toll. Trachoma was a public health problem of significant proportions, particularly among the western Indians. Factors contributing to the high morbidity and mortality are poor housing conditions, lack of proper hygiene and sanitation, unsatisfactory nutrition, and, in many cases, economic hardship.

Administration

The objects and policies of Indian administration in Canada stated by the Minister of Citizenship and Immigration are:

"The underlying principles of Indian legislation through the years have been protection and advancement of the Indian population. In the earlier

period the main emphasis was on protection. But as the Indians became more self-reliant and capable of successfully adapting themselves to modern conditions, more emphasis is being laid on greater participation and responsibility by Indians in the conduct of their own affairs. Indeed, it may be said that ever since Confederation the underlying purpose of Indian administration has been to prepare the Indians for full citizenship with the same rights and responsibilities as those enjoyed and accepted by other members of the community. . . .

The ultimate goal of our Indian policy is the integration of the Indians into the general life and economy of the country. It is recognized, however, that during a temporary transition period of varying length, depending upon the circumstances and stage of development of different bands, special treatment and legislation are necessary."

Government administers the affairs of the native peoples, these services for Indians being carried out by the Indian Affairs Branch of the Department of Citizenship and Immigration, while the Eskimo Administration is in a special section of the Department of Northern Affairs and National Resources. Since 1945, Health Services for both groups have been assigned to the Indian and Northern Health Services of the Department of National Health and Welfare.

Indian Affairs Branch in the present fiscal year will spend approximately $21,000,000 on welfare, education, housing and other services designed to improve conditions among the Indians.

Similarly, the Eskimo Division of the Department of Northern Affairs and National Resources, provides educational facilities and welfare for Eskimos and are attempting in every feasible way, to improve conditions for these northern Canadians.

Department of National Health and Welfare

Indians and Eskimos are eligible for legislative social benefits, including Family Allowances, Old Age Assistance and Old Age Security, and pensions for the blind. From what was a modest beginning a comprehensive Indian and Northern Health Service has been developed. This year our appropriation is just over $17,000,000.

The chief functions of this Service are:

1. The organization and supervision of programs of preventive and public health care by departmental physicians, nurses and dentists in cooperation with provincial health agencies.
2. Provision of essential active treatment, either in departmental hospitals and nursing stations or through arrangements with local physicians and community hospitals.
3. Development of health and social educational programs aimed at improving the health consciousness and encouraging community responsibility for health among Indians and Eskimos.
4. Administrative guidance to Northern Health Services in the development of plans for coordination of medical services in the Yukon and Northwest Territories.

Care of the Indians

Difficulties peculiar to this service are the geographic distribution of most of the Indian and Eskimo populations, with its consequent scarcity of transportation and communication facilities and the necessarily high costs involved in the movement of both patients and personnel. I believe that it would be of interest to describe one of our units for the care of Indians in a given area.

In the town of Sioux Lookout, in North Western Ontario, we operate a fully modern 100 bed hospital. This hospital serves an area from the Manitoba boundary almost to the shores of James Bay, and north to the coast of Hudson's Bay, an area of over 60,000 square miles, with a scattered Indian population of about five thousand. This hospital is the hub of health centres located at Lac Seul, Pikangikum, Big Trout Lake, Osnaburg House, Lansdowne House, and Sandy Lake.

A typical health centre is staffed by a public health nurse, assistant nurse and a handyman. It has its own electric light plant and inside plumbing. In a health centre there is a dispensary with an adequate stock of medical supplies, and there are two three-bed wards for emergency cases. The nurse has radio communication with the doctor at the Sioux Lookout Hospital and carries out his instructions.

When it becomes necessary, a doctor makes a trip by air and may convey patients back to the hospital if this is indicated. The planes used in flying into these areas are known as bush planes. They are equipped with floats to land on water in summer, and with skis to land on snow or ice in winter. There is a period of freeze-up and breakup of about six weeks each, when air travel is impossible. Winter flying conditions prevail for about five months of the year.

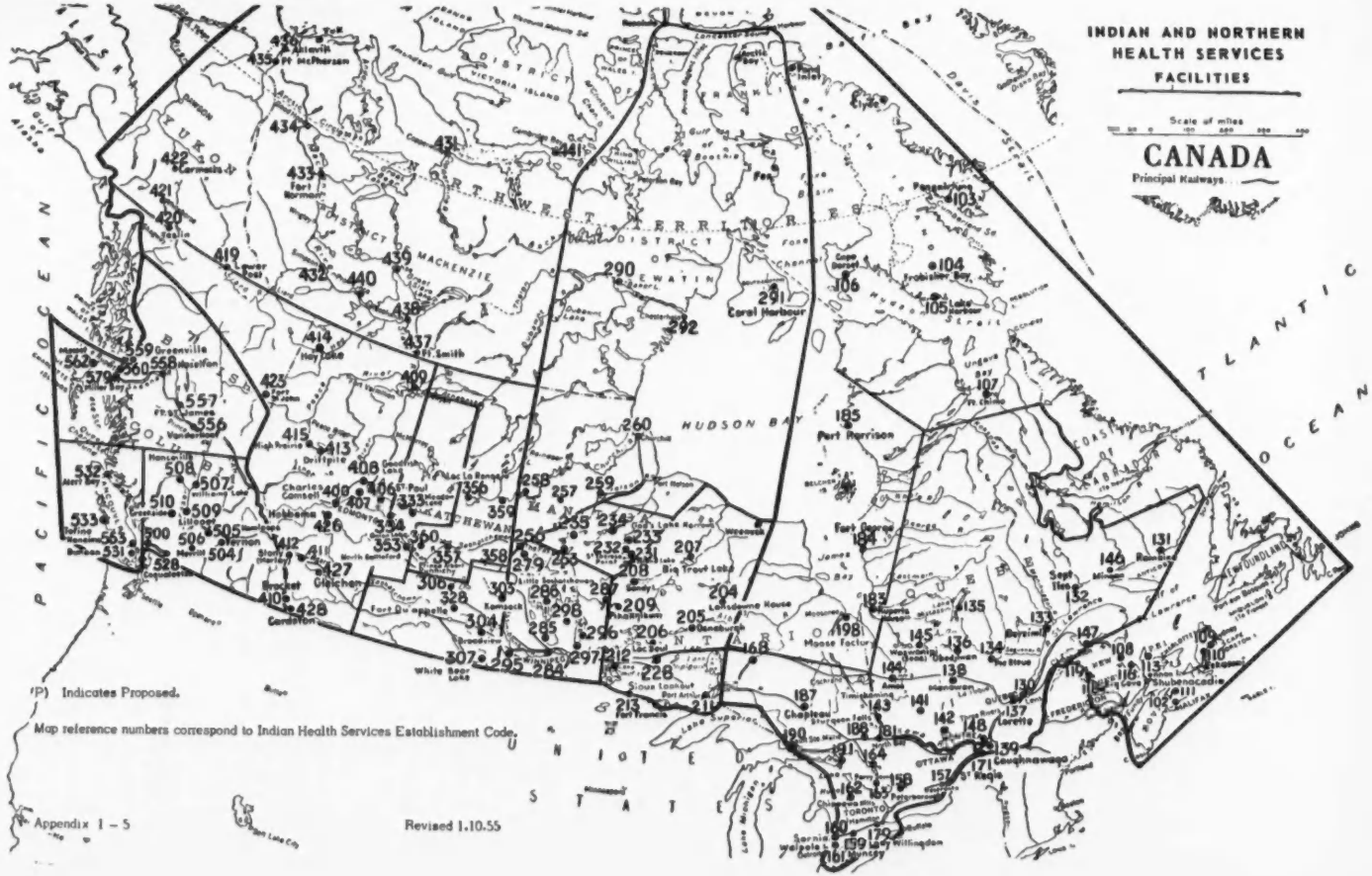
The nurse also carries out a public health program in her area, toxoiding, vaccinating, well-baby clinics, instruction in nutrition, etc.

Care of the Eskimos

Our medical service to the Eskimo is, unfortunately, not as well developed as our service to the Indian. This is due almost entirely to the remoteness of the areas in which they live and the wide dispersal of the family groups. However, we do have five medical officers stationed in the Arctic and operate six health centres for Eskimos such as I have described for Indians.

I want to emphasize that 8,500 Eskimos are scattered along thousands of miles of Arctic coast, living a roving life in groups of three or four families. They gather at trading posts at certain seasons of the year and advantage is taken of this fact in arranging x-ray surveys which we carry out annually along the Arctic Coast. The x-ray party is flown in to these posts, the Eskimos previously having been notified that the doctor and the x-ray will be there. Almost every trading post now has radio communication with the outside world, by means of which medical advice may be obtained.

Messages are sent at Christmas time to the various trading posts, Royal Canadian Mounted Police Posts, and missionaries that the x-ray party will visit the post at Easter. The Eskimos are most cooperative and will gather at



(P) Indicates Proposed.

Map reference numbers correspond to Indian Health Services Establishment Code.

Revised 1.10.55

the posts and when asked to do so will leave their families and friends, climb on board an aircraft and start off for a destination 1500 miles away, knowing that they will probably have to remain "outside" as they call it, for a year or more. In the Eastern Arctic an annual patrol is made by the Canadian Government vessel, the "C.D. Howe". On board this ship we have a complete sick-bay, operating room, x-ray room, dental office and laboratory, and a complete medical party and dentist staff it.

The Eskimos gather at all the ports of call for ship time and travel out to the ship in their kayaks to go on board for x-ray, medical and dental treatment. A supply of medicines, dressings, etc. is left at each post, including small amounts of antibiotics, and DDT for keeping down body vermin.

The Eastern Arctic Patrol leaves Montreal about the end of June and returns to home port late in October. This is the only period that navigation is open, even for an ice-breaker.

When illness or accidents occur at other times of the year "mercy" flights are undertaken by the Royal Canadian Air Force. Where it has been impossible to land, medical supplies and instructions have been dropped by parachute and, in some instances, an Army or Air Force doctor has parachuted into a camp.

Tuberculosis

Following World War II, hospitals which had originally been built for national defence purposes were acquired. Intensive surveys are made annually so that about 75,000 Indians and Eskimos are x-rayed each year.

Many of these x-ray surveys have to be carried out entirely by air, the x-ray party flying in, putting up tents, including dark room and carrying out these surveys when the people are gathered together, for instance at the time of the annual treaty payment. An active and aggressive BCG program is being carried out. In some areas every baby born is given BCG.

At present we have more than 3,200 Indians and Eskimos under treatment in sanatoria for tuberculosis. We annually discharge 2,500 to 3,000 with the disease either cured or arrested. This immediately creates a problem of rehabilitation and efforts are being made to establish rehabilitation programs. The effectiveness of this program can be judged by the fact that the death rate from tuberculosis in 1946 was 579.1 per 100,000 population. It has consistently come down year after year until the latest figure available from the Dominion Bureau of Statistics shows a death rate of 100.3 per 100,000 for 1953, 60.1 for 1954 and preliminary figures indicate a further drop for 1955, probably to about 48.

During the past year our chief activities were:

1. *Operation of health facilities*: 18 departmental hospitals with 2,223 beds and bassinets, 33 nursing stations with 157 beds, 52 health centres containing dispensaries and 13 other health centres staffed by a full time doctor or nurse. These facilities provided 760,416 patient days' treatment in 1954.

2. *Direction of full-time salaried health personnel.* Included are: 12 administrative medical officers, 39 field medical officers, 43 hospital medical officers, 11 dental surgeons, 106 field nurses and nursing station nurses and 232 hospital nurses. There is provision in our present estimates for a total staff of 1805. At the first of January 1955, 407 Indians and Eskimos were employed.
3. *Arrangement for services of non-departmental health personnel on a part-time salary or fee for service basis*: There are 63 part-time physicians, more than 1,200 physicians, 125 dentists and 125 dispensers, etc. rendering accounts.
4. *Utilization of non-departmental hospitals* remunerated on a per diem basis, totalling 959,666 patient days during 1954.
5. *Case finding services*: tuberculosis, eye disorders, venereal disease and parasitic disease.
6. *Preventive procedures*: immunization against communicable disease, use of Bacillus-Calmette-Guerin vaccine against tuberculosis (approximately 6,000 inoculations and dental treatment.

Public Health Education

Filmstrips and Films recently produced: The Starlight Story, Safe Water, How to Feed your Baby, Hydatid Disease, Tuberculosis—An Indian Killer, Ten Little People and Their Teeth, Why we Eat, Nine to Get Ready, Introducing Baby and Indian Health Nurse.

Posters: When Baby Gets Big, Good Food Makes a Strong Child, Don't Duck your X-RAY, Stop Hydatid Disease Here, Keep away from Sick People, Help the Services Keep you Well, Keep Yourself Clean, Get the Protection of Vaccination, Did you Wash your Hands? Toothbrush Right After Eating, Unclean Water Can Kill, Flies Favor Filth, Avoid the Common Drinking Cup, Vitamin D. Poster, Canada's Food Rules.

Books and Pamphlets: The Canadian Mother and Child, Canada's Food Rules, Make Every Day Vitamin D Day, Safe Milk (How to pasteurize milk at home), Domestic Sewage Disposal, Rural Waters (How to build wells), Protect Your Baby By Immunization, Good Habits for Good Teeth, Ten Little People and Their Teeth and Better Health for Canada's Indians.

From the foregoing it can be seen that there are many characteristically similar problems for governments in attempting to provide adequate care to native populations whether they be in the Arctic, in the temperate, or tropical countries.

Extraneous Matter and Bacteria of Public Health Significance in Cheese[1]

F. S. THATCHER,[2] W. SIMON and C. WALTERS

THIS paper summarizes the results of studies made during the past three years to determine: (1) incidence in Canadian cheese and in milk supplied to cheese factories of extraneous matter and of specific bacteria usually considered to be of public health significance, (2) comparative sanitation of cheese factories, (3) presence in marketed cheese of specific bacterial toxins, and (4) extent to which cheese may serve as a vehicle for distribution of a specific pathogen.

Methods

Every effort was made to practise random selection (a) in the purchase from retail markets of specimens of cheese, (b) of the factories inspected, and (c) of the milk from individual farms as delivered to the factories. Some 300 samples of cheese were purchased from retail stores from Halifax to Vancouver.

Milk for bacteriological examination was obtained with sterile pipettes from the various shipping containers and transported to a laboratory in pre-cooled sterile bottles kept continuously packed in ice while in transit. The location of the factories inspected ranged from the Maritime Provinces to British Columbia, but the greater number were in Ontario and Quebec since most of Canada's cheese production occurs in these two provinces.

Bacteriological Procedures

Conventional plating methods were used to determine numerical estimates of the presence of *Escherichia coli*, fecal streptococci, and *Micrococcus pyogenes* var. *aureus* (staphylococci) in cheese and milk, using, respectively, violet-red-bile agar, enterococcus confirmatory agar and mannitol-salt agar (all "Difco" products). Representative specimens of staphylococci were subjected to the coagulase test and all estimates of staphylococci were based on the proportion that were coagulase-positive, and, accordingly, presumed to be potentially enterotoxigenic.

To determine the presence of *Salmonella* and *Paracolobactrum* in cheese, selenite broth (Difco) was used as a selective enrichment medium, followed by plating on Difco "S.S.", and Bismuth sulphite agars and Knothe's modification of Kauffmann's brilliant-green agar (5). Appropriate series of confirmatory tests were applied for all species.

The presence of *Streptococcus agalactiae* was determined in 111 specimens of milk as a possible indicator of the extent of occurrence of bovine mastitis by use of the methods of

---

[1]Contribution from the Laboratories of the Food and Drug Directorate, Department of National Health and Welfare, Ottawa.

[2]F. S. Thatcher, Ph.D., Head, Microbiology Section, Food and Drug Directorate.

Foley (4). Twelve initial isolates were shown to react positively with Lancefield group B antiserum.

"Plate counts" were determined for milk only, using standard plating methods.

Direct microscopic counts of bacteria and leucocytes in milk specimens were made with the aid of North's methylene-blue stain (7).

Isolation of Brucella

The following original cultural method for the isolation of *Brucella* from cheese was applied to 96 specimens made from unpasteurized milk (all less than 60 days old). Even though a new plating medium for the isolation of brucellae has since been described by Kuzdas and Morse (6), some success with the present method would warrant a precise description.

A 10 gm. portion of cheese was comminuted in 50 ml. 0.8% saline solution; glass beads were added and the specimen shaken in a reciprocating shaker for 60 min. Centrifugation at 500 r.p.m. deposited the larger cheese particles and "dirt". *Brucella abortus* antiserum was then added to a 3 ml. aliquot of the supernatant to provide a titre of 1:100 before refrigerating overnight. On the assumption that any agglutinated *Brucella* cells would tend to be carried to the surface by rising fat globules (as shown by the Brucella "ring-test") the fat from the cheese was recovered by centrifuging at 3,000 r.p.m. for 15 min. after which it was washed in sterile saline, re-centrifuged, and smeared on plates of Boyd-Casman agar (2) containing crystal violet at 1:100,000. After incubating at 37°C. in an atmosphere of 10% CO_2 for from 5 to 14 days, small, smooth, glistening, purple-coloured colonies containing very small, almost coccoid, Gram-negative bacilli were selected for verification as *Brucella*. This was carried out by inoculating plates of Boyd-Casman medium without dye, incubating as before for 48 hr. and testing by the slide agglutination method using standardized *Brucella abortus* antiserum. Possible confusion from cross-agglutinating species such as described by Felsenfeld *et al.* (3) for occasional strains of *Salmonella*, *Paracolobactrum* and *Alcaligenes* was eliminated by microscopic examination and by cultural methods for the recognition of these last genera. Confirmation of *Brucella* was carried out by inoculation of guinea pigs, which, after 5 weeks, were bled from the heart and the blood serum tested for the presence of *Brucella* agglutinins with standardized "rapid" *Brucella abortus* antigen (kindly provided by Mr. T. Moore, Health of Animals Branch, Department of Agriculture, Ottawa). The usefulness of this cultural method was first tested using cheese suspensions to which the non-pathogenic strain 19 of *Brucella abortus* had been added in controlled amounts. Precise typing of *Brucella* isolates was not carried out.

'Phage Patterns of Staphylococci

The capacity of cheese to serve as a vehicle for widespread dissemination of pathogens into the community was investigated by determining the distribution of specific 'phage patterns of coagulase-positive staphylococci isolated from cheese of a widely-sold brand obtained from specimens purchased from 5 retail stores in each of seven cities from Halifax to Vancouver and from the factory of origin. These were compared with the numerically dominant strains recovered from milk delivered to the factory.

Toxins in Cheese

Specimens of cheese found to contain large numbers of staphylococci or other species not generally considered desirable in foods, namely, *Pseudomonas aeruginosa*, *Proteus spp.*, *E. coli*, and *Clostridium perfringens*, were tested for the presence of hemolysins, dermonecrotic and lethal toxins and for enterotoxins. The test specimens were obtained by comminuting a mixture of 30 gm. of cheese in 100 ml. of sterile saline solution, and Seitz filtering to obtain sterility. The presence of hemolysins was checked by the use of washed erythrocytes of sheep by the tube method; dermonecrotic toxins by intradermal and subcutaneous injection into mice or guinea pigs, lethal toxins by intravenous injection of rabbits, and enterotoxin by the cat-test, all as described by Thatcher and Matheson (8). The validity of hemolytic, dermonecrotic and lethal reactions shown by representative specimens was checked by neutralizing their effect by the addition of staphylococcus antitoxins and in one instance by prior immunization of test animals with a toxoid of *Clostridium perfringens*.

The Sanitation of Factories

Comparative estimates of the overall sanitary attainment of factories were obtained by inspection coupled with objective evidence of contamination obtained by the use of a bacteriological "swab" method. The system of inspection in use required attention to some 100 items involving the factory structure, maintenance and equipment, its environment, rodent and insect infestation, cleansing and disinfection, and the hygiene practised by its workers. The swabs were used to determine the contamination within the factory of surfaces that would contact milk or curd, but which had received whatever cleansing treatment was provided by the specific factories. By a swab-slope method (9) estimates were obtained of "total count", coliforms, fecal streptococci, staphylococci, and *Streptococcus salivarius* by the respective use of "slopes" of the following agars (all Difco products): "nutrient", "violet-red-bile", "enterococcus confirmatory", "mannitol-salt" and "Mitis-salivarius".

The Determination of Extraneous Matter in Milk and Cheese

The categories of extraneous matter quantitatively determined in milk and cheese included: hairs of rodents, of bovines, other species (mainly Man), manure fragments, feed particles, insects and insect fragments, metal particles and amorphous "dirt".

For milk, these were determined by microscopic examination from the detritus held on filter pads after forcing through them 1 pint of milk obtained from shipping containers by the use of a standard "off-the-bottom" milk sampler. The same categories were determined in 225 gm. specimens of cheese after digestion of the cheese by the phosphoric acid method (1).

Results

Extraneous Matter and Undesirable Bacteria in Cheese

The percentage of cheese samples purchased from retail sources that contained various types of extraneous matter are listed in Table I. Distinction is made between cheese produced from unpasteurized and from pasteurized milk.

TABLE I

THE OCCURRENCE OF EXTRANEOUS MATTER IN CHEESE MADE FROM UNPASTEURIZED AND PASTEURIZED MILK
(Size of sample = 225 gm.) 189 cheeses.

Type of extraneous matter	Proportion of cheeses containing extraneous matter			
	Cheese made from unpasteurized milk (106 samples)		Cheese made from pasteurized milk (83 samples)	
	% Specimens containing	Highest number per sample	% Specimens containing	Highest number per sample
Rodent hairs	22	3	1.2	1
Bovine hairs	74	12	4.8	1
Other hairs	48	12	not done	–
Insects fragments	19	5	16	2
Manure fragments	88	104	30	6
Feather barbules	10	2	not done	–

The incidence of rodent hairs in the "raw" milk cheese is shown to be 22%, as compared with 1.2% for the pasteurized product. The comparative occurrence of manure fragments was 88% and 30%, of bovine hairs 74% and 4.8%, of insects 19% and 16%, in the respective cheese types. House flies were the more common insect recognized from the fragments examined.

The results of bacterial examination of the two types of cheese are listed in Table II.

The extremely high degree of fecal contamination among the raw-milk cheeses is indicated by the general occurrence of *E. coli* or of fecal streptococci

TABLE II

THE DISTRIBUTION OF SPECIFIC GROUPS OF BACTERIA IN CHEESE MADE FROM PASTEURIZED AND NON-PASTEURIZED MILK IN THE YEARS 1952 AND 1953

Bacterial category	Cheese made from non-pasteurized milk (106 samples)			Cheese made from pasteurized milk (83 samples)		
	% of samples containing	Median number per sample (number per gm.)	Highest recorded count (number per gm.)	% of samples containing	Median number per sample	Highest recorded count
E. coli	57*	5,000	7,000,000	69*	2,500	4,500,000**
Fecal streptococci	97*	12,000	7,200,000	14*	50	800
Staphylococci (coagulase-positive)	45*	0 (median of those containing staph = 100,000)	1,500,000	13*	0 (median of those containing staph = 69,000)	3,400,000
Paracolobactrum	19***	—	—	Not tested		
Salmonella	Not found in 3 of 96 samples	—	—	Not tested		
Brucella		—	—	Not tested		

*In numbers greater than 100 per gm.
**From packaged curd.
***No minimal limit.

in practically all samples, each at maximal values of 7,000,000 per gm. These two species were present, respectively, in numbers greater than 100/gm. in 69% and 14% of the samples of cheese made from pasteurized milk.

Coagulase-positive staphylococci were isolated from 45% of the cheese made from raw milk and from 13% of that made from pasteurized milk. No tests were made for *Paracolobactrum* in the pasteurized product, but members of this genus were recovered from 19% of the raw-milk product.

Brucellae were isolated from 4 of the 96 specimens tested. Positive isolations were recorded from the three cheese types—Limburger, Romadour and "fromage-en-grain" (packaged Cheddar curd).

TABLE III

THE ISOLATION OF *Brucella* FROM MARKET CHEESES MADE FROM UNPASTEURIZED MILK

Cheese type	Number of cheese specimens	Cultural characters of suspect colonies						Number cultures showing agglutination with *Brucella abortus* antiserum	Number cultures inducing anti-*Brucella abortus* agglutinins in guinea pigs ("Rapid" antigen)	Number cheeses indicating Brucella
		Dextrose	Lactose	Sucrose	Indole	Nitrate	H_2S			
Port Salut	64	—	—	—	—	—	+	2	0 (serum from one animal gave a tube-titre of 1:80)	0
Limburger	10	—	—	—	—	—	+	2	2	2
Romadour	5	—	—	—	—	—	+	1	1	1
Cheddar	9	No colonies resembling Brucella						0	0	0
"Fromage-en-grains" (packaged curd)	8	—	—	—	—	—	+	1	1	1
Totals	96							6	4	4

Extraneous Matter and Objectionable Bacteria in Milk as Delivered to Cheese Factories

The proportion of samples of milk destined for cheese factories that contained specified categories of extraneous matter and bacteria are listed in Table IV. The data show the commonplace occurrence of direct fecal contamination of milk as established by the detection both of manure fragments and of the enteric bacteria *E. coli* and enterococci. Seventy-six per cent of the 421 samples tested contained manure fragments. Additional sources of fecal contamination are shown by the presence of rodent hairs in 6.4% of the samples, of bovine hairs in 60%, and insects or insect fragments in 38%.

E. coli occurred in numbers greater than 10^4/ml. in 59% of the specimens and fecal streptococci in comparable numbers in 30%. Staphylococci were detected in numbers in excess of 10^4/ml. in 35.5% of the samples. *Streptococcus agalactiae* was recovered from 67% of the 111 samples tested for this species. These last two species should be considered in relation to the high leucocyte counts determined, which were in numbers greater than 10^6/ml. in 33% of the samples. Species classified as belonging to the genus *Paracolobactrum* were isolated from 14% of the samples. *Salmonella* was not found.

TABLE IV

THE CONTENT OF SPECIFIC BACTERIA AND EXTRANEOUS MATTER IN MILK AS DELIVERED TO CHEESE FACTORIES (SAMPLES FROM 421 INDIVIDUAL SHIPMENTS)

The percentage of milk samples from individual "Shippers" containing specific contaminants

Bacteria		Extraneous matter*	
E. coli	97	Rodent hairs	6.4
in excess of 10^4/ml.	58.9		
Fecal streptococci	94	Bovine hairs	60
in excess of 10^4/ml.	31.4		
Staphylococci (coagulase-positive)	40	Manure fragments	76
in excess of 10^4/ml.	35.5		
Paracolobactrum	14	Insects and fragments	38
Salmonella	0	Metal fragments	10
Strep. agalactiae†	67	Excess amorphous dirt	30
Leucocytes			
in excess of 10^6/ml.	33.0†		

†111 samples only.
*By microscopic examination of sediment from 1 pint of milk obtained with standard "off the bottom" samplers.

The general bacteriological condition of the milk delivered to cheese factories is shown in Table V. The median standard plate count of the various shipments of milk delivered to individual factories is shown to exceed 10,000,000/ml. in 40% of the factories. Similarly, median counts in excess of 10,000/ml. were obtained in 59%, 33% and 93% of the factories for *E. coli*, fecal streptococci, and staphylococci, respectively.

TABLE V

THE BACTERIAL CONTENT OF MILK AS DELIVERED TO CHEESE FACTORIES. MEDIAN COUNTS PER "SHIPPER" PER FACTORY.

"Total" plate count		Fecal Bacteria and Staphylococci			
Number per ml.	% of factories*	Number per ml.	% of factories		
			E. coli	*Fecal Strep.*	*Staph.*
Less than 100,000	0	0–1000	0	27	0
100,000 to 500,000	14	1,000– 5,000	14	33	0
500,000 to 1,000,000	7	5,000– 10,000	27	7	7
10^6 to 5,000,000	27	10,000– 50,000	14	20	46
5, to 10,000,000	14	50,000–100,000	12	13	33
10, to 15,000,000	20	Greater than 100,000	33	0	14
Greater than 15,000,000	20				

*Percentage of factories that received milk having a median count for all shippers within the ranges specified.

The results of a direct microscopic examination of milk are recorded in Table VI. The average values for the direct "clump" count of the various shipments delivered to each factory are shown to range from 1,400,000 to 73,000,000/ml., while the comparable values for pus-cells were 400,000 to 1,800,000. The highest recorded values for the direct clump count and for pus-cells were 500,000,000 and 10,600,000/ml., respectively.

TABLE VI

THE NUMBERS OF BACTERIA AND PUS-CELLS IN MILK AS DELIVERED TO A REPRESENTATIVE SELECTION OF CHEESE FACTORIES (187 HERD SAMPLES)—1952

Category	Average and Range Values per herd* for indicated categories	
	Bacteria (number/ml.) (direct "clump" count)	Pus-cells (number/ml.)
Herd Average (range in average values for all factories)	1,400,000– 73,000,000	400,000–1,800,000
Herd Median (range in median values per herd, for all factories)	1,000,000–240,000,000	300,000–2,500,000
Average of maximum values (per herd)	142,000,000	5,200,000
Highest recorded count	500,000,000	10,600,000

*Bulk milk from delivery containers. Direct smear; no prior centrifuging.

Cheese as a Disseminating Vehicle for Pathogens and Toxins

The potential opportunity for cheese to serve as a vehicle for widespread distribution of pathogens is illustrated by the data in Table VII which reports the 'phage patterns of the numerically dominant staphylococci recovered from milk, from the curd, from immature cheeses, and from specimens of cheese purchased from retail stores in seven designated cities, all originating from the same factory. The numerically dominant isolates of staphylococci found in milk as delivered to the cheese factory were shown to be also numerically dominant in the cheese purchased from the seven cities, as well as in the curd and immature cheeses.

TABLE VII

GEOGRAPHIC DISPERSAL OF A SPECIFIC STRAIN OF ENTEROTOXIGENIC STAPHYLOCOCCI IN CHEESE* FROM ONE FACTORY

Source of culture	Number cultures 'phage-typed	'Phage-patterns determined from random isolates:** Nos. of cultures	
		Pattern "A"	Other patterns
Milk (from individual shipments)	37	27	T, U, VIII, IX, X, XI, XIV, XV (unknown: 2)
Milk (from factory vats)	2	2	—
Curd (at factory)	3	3	
Cheese: immature, at factory	7	5	R, S.
Cheese: marketed in the following cities:			
Halifax (N.S.)	2***	2	
Montreal (Que.)	2	2	
Hull (Que.)	2	2	
Ottawa (Ont.)	2	2	
Toronto (Ont.)	2	2	
Winnipeg (Man.)	2	1	B
Vancouver (B.C.)	2	2	
Totals:	63	50	13

*"Port-Salut" type: made at the time from unpasteurized milk.

**'Phage patterns in accord with a tentative scheme then in use by the Toronto Laboratories of the Ontario Department of Health. To Dr. Bell and Mr. Miller of the Toronto Laboratory grateful acknowledgment is made for these determinations.

***This column: random selection from the many isolates recovered from each specimen.

Cheese may also serve as a vehicle for dissemination of bacterial toxins as shown by the data in Table VIII which demonstrates the occurrence of hemolysins and of toxins that were dermonecrotic and lethal upon injection to rats, guinea pigs and mice and enterotoxic to cats in cheeses purchased from retail markets and including, also, specimens that had been submitted to this laboratory with complaint of having caused illness. The specimens tested for toxin content were those in which designated species of bacteria not normally considered desirable in foods were shown to be present in large numbers. Toxins

TABLE VIII

PRESENCE OF SPECIFIC BACTERIAL TOXINS IN CHEESE CONTAINING STAPHYLOCOCCI AND OTHER POSSIBLY OBJECTIONABLE BACTERIA

Variety of cheese	Number of samples tested	Species present	Number of cheeses (1) showing specific toxic reactions			
			Dermo-necrotic (2)	Haemo-lytic (3)	Lethal (4)	Entero-toxic (5)
Cheddar	22	Staphylococci*	11	12	2	3
Port Salut	17	Staphylococci	8	8	3	3
Romadour	5	Staphylococci	2	2	2	2
Limburger	4	Staphylococci	0	0	0	0
Limburger	1	*Clostridium perfringens*	1	1	0	0
Cheddar	3	E. coli	0	0	0	0
Cheddar	3	*Pseudomonas aeruginosa*	0	0	0	0
Cheddar	3	*Proteus* spp.	0	0	0	0
Cheddar	1	*Clostridium* spp. (non-pathogenic)	0	0	0	0
Cheddar	30	Normal flora (above species if present, in numbers <100/gm.)	0	0	0	0
Totals	89		22	23	7	8

(1) Test specimens: 30% cheese in saline; Seitz filtered.
(2) Ulceration after intra-dermal injection of rabbits or sub-cutaneous injection of guinea pigs.
(3) To sheep cells.
(4) Death of guinea pigs after sub-cutaneous injection, or of rabbits after administering intravenously.
(5) Vomiting of cats after intraperitoneal injection of boiled filtrates.
*Staphylococci all coagulase-positive.

were shown to be present in association with coagulase-positive staphylococci and with *Clostridium perfringens* but not with *E. coli, Proteus, Pseudomonas aeruginosa* or non-pathogenic clostridia, nor with cheese having a flora lacking in any of the above populations.

Immunization of rabbits to staphylococcal toxoid preparations gave protection against the dermonecrotic and lethal toxins in cheeses containing staphylococci. The toxic effect of the cheese filtrates could be neutralized by addition of staphylococcal antiserum to the injected aliquots.

Comparable protection against the toxin in the cheese containing *Clostridium perfringens* was also provided by immunization of rabbits with a toxoid from the same species. Specific immunization also gave protection against toxins of staphylococcus and *Clostridium perfringens* obtained from other sources, while these latter toxin preparations when used independently caused reactions in test animals of the same pathological significance as those induced by the appropriate cheese preparations, as gauged by a pathologist in an independent laboratory.

The Sanitation of Cheese Factories

An estimate of the comparative attainment of sanitation by the various cheese factories is shown in Table IX. Thirty-seven (28%) of the factories were adjudged during the years 1952 and 1953 to be satisfactory, while 20% were considered to be severely sub-standard.

TABLE IX

COMPARATIVE SANITATION OF CHEESE FACTORIES* (1952–1953)

Classification of Factories	Sanitation score (%)	Number of factories
Satisfactory	70–100	37
Specific improvements needed	60– 69	38
Major improvement necessary	40– 59	31
Severely sub-standard, with major health hazards	less than 40	27

*Sanitation estimated from comprehensive inspection reports in conjunction with results from bacterial swab-tests made with equipment.

The extent of contamination within the factories of surfaces that would contaminate food is shown by the data in Table X, which reports the results from 1177 swabs. Eighty-nine per cent of the tested surfaces provided a "swab-slope" count in excess of 100 per 4 sq. in. *E. coli* was recovered from 59% of the surfaces, fecal streptococci from 63%, oral streptococci (*S. salivarius* and *S. mitis*) from 65% and staphylococci from 55%.

TABLE X

COMPARATIVE CLEANLINESS OF SURFACES THAT WOULD CONTACT FOOD WITHIN CHEESE FACTORIES AS INDICATED BY BACTERIAL "SWABS"

Bacteriological test	Culture-medium ("Difco" agars)	Percentage† of swab-slopes positive
"Total Count"*	Tryptone-glucose	89 (greater than 100 per slope)
E. coli[1]	Violet-red-bile	59
Fecal streptococci[1]	Enterococcus confirmatory	63
Streptococcus salivarius[1]	Mitis-salivarius	65
Staphylococci[1]	Mannitol-salt	55

*Number of colonies developing on an agar slope inoculated with a swab rubbed over an area of 4 sq. in. of a factory surface that would contact milk or curd.
†Based on 1177 swabs.
[1]Presence confirmed: no numerical minimum considered.

DISCUSSION

The foregoing results show the extent of contamination of the milk delivered to cheese factories during the years 1952–53 with extraneous matter, and with bacteria of public health significance. Unsanitary production methods (including inadequate cooling, and the use of milk from mastitic cows) are indicated as contributory to this contamination. That at least a substantial proportion of the isolates of *E. coli* and of the fecal streptococci were of direct

fecal origin is confirmed by the presence, in both milk and cheese, of manure fragments, rodent and bovine hairs, and feather barbules. The more common source of rodent hairs in foods is from fecal pellets of rats and mice which invariably contain large numbers of hairs. Feather barbules in foods frequently have their source from hen manure. Hence, physical evidence is provided of fecal contamination from at least three sources: rodent, bovine and avian. The specific form of unsanitary conditions noted in some factories would be expected to contribute contamination from human fecal sources. Additional fecal contamination would probably arise indirectly from insects, of which house flies were the more commonly recognized kind.

A substantial part of the cheese made from pasteurized milk also gave evidence of fecal and staphylococcal contamination. This would indicate the occurrence of contamination *after* pasteurization and would point to the probability of unsatisfactory attainment in sanitation and in the practice of hygiene by the workers. The reduced amount of extraneous matter in cheese made from pasteurized milk as compared with the raw-milk product seemed to be related in part to the use of more effective filters prior to pasteurization.

The common occurrence in cheese of potentially enterotoxigenic staphylococci in large numbers is to be deprecated not only because of the risk of food-poisoning but because of the undesirability of the continuing introduction of pathogenic staphylococci into the consumer's kitchen.

The significance of cheese as a potential vehicle for distribution of pathogens and toxins should be considered not only in the light of the proved distribution of staphylococci, but in the event of the possible occurrence of a more serious contamination whether by "accident" or by nefarious intent.

The experience of this laboratory suggests that the proportion of cheese that will allow the development of a clinically significant amount of enterotoxin in relation to the proportion that contains staphylococci is very small but under appropriate, though unknown conditions, it can occur.

The occurrence of brucellae in cheese points again to the desirability of pasteurization for all dairy products.

Our general findings suggest two positive needs: (a) more stringent control of milk for manufacturing in accord with that practised for the fluid milk market, and (b) a marked improvement in the sanitation of factories, including the personal hygiene of the workers.

REFERENCES

1. Association of Official Agricultural Chemists. Methods of analysis, A.O.A.C., 7th Ed., 1950, p. 707. Assoc. Off. Agr. Chem., Washington, D.C.
2. Boyd, D. M. and Casman, C. P.: Pub. Health Repts., 1951, *66*: 44.
3. Felsenfeld, O., Soman, D., Young, V. M., Yoshimura, T., Waters, T., and Ishihara, S. J.: Proc. Soc. Exper. Biol. Med., 1951, *77*: 284.
4. Foley, E. J.: J. Milk Technol., 1942, *5*: 94.
5. Knothe, H.: *In*: Biol. Abstr., 1950, *24*: 2568.
6. Kuzdas, C. D., and Morse, E. V.: J. Bact., 1953, *66*: 502.
7. North, W. R.: J. Assoc. Off. Agr. Chem., 1945, *28*: 424.
8. Thatcher, F. S. and Matheson, B. H.: Can. Jour. Microbiol., 1955, *1*: 382.
9. Thatcher, F. S. and Simon, W.: The estimation of hygienic attainment in food factories by simple bacteriological methods. Manuscript in preparation.

Trends in Industrial Health Programs

R. G. BIRRELL, M.D.,
Medical Director
Imperial Oil Limited
Toronto, Ontario

I am pleased to have this opportunity of discussing "Trends in Industrial Health Programs." Many changes in attitude and practice have occurred in the twenty-five years and more in which I have been engaged in industrial medicine. The accelerating growth in this field is of the greatest interest to me, as I assume it is to you. Let us look at some of the trends—past and present—which have brought this about.

Immediately following the industrial revolution, manpower, en masse, was generally considered more expendable than equipment or machines. Working and living conditions were ignored. When an injury occurred within a plant, it was pretty much up to the victim and his fellow employees to do the best they could. Gradually, industrial managements developed a sense of responsibility—not only for the provision of emergency care, but also for the prevention of accidents. This, no doubt, was partially due to the enactment of Workmen's Compensation Laws and cost of law suits. As an awareness of hazards in industry grew, steps were taken to control them.

The first step taken to provide emergency care was to arrange to have surgeons on call. The next step was to train employees in first aid and accident prevention to supplement the surgeon's services. This was followed by the introduction of physical examinations prior to employment—largely for the purpose of excluding all but first-class risks. Then came the appointment of a doctor to drop into the plant once or twice a week, in addition to being on call for accidents. Full-time first-aid men, and later nurses, were employed. Today we find an increasing number of physicians filling a full-time role in occupational health programs.

All this adds up to the fact that the main trend to appear in the development of occupational medicine was an appreciation of the value of the health and welfare of the individual. Subsequent developments were an expression of this concern.

Once attention had been focussed on the individual's health, the next trend to appear was a change in emphasis from first aid to the removal of environmental hazards, and from treatment of disease to prevention of disease. Physical medicine, now so important in rehabilitation, and recognized as a specialty, was frowned upon thirty years ago as not quite ethical.

Presented at the forty-third annual meeting of the Canadian Public Health Association, held in the Macdonald Hotel, Edmonton, September 6–8, 1955.

Occupational Medicine–Its Aims

1. **proper placement of the individual** in relation to physical and mental abilities–to prevent accidents and breakdowns.
2. **health education**—Visits to a health centre by employees in a plant commonly average 5 to 10, or more, per employee per year. This represents contact with professional personnel, which does not occur elsewhere. These visits are an opportunity for health education. The employee is seeking help and is, therefore, receptive to advice. By influencing the attitude to health in homes through the workers, the community as a whole is benefited. Those of you who are Medical Officers of Health are in frequent touch with local employers and physicians. Herein lies an opportunity for stimulation of both these groups to active participation in the health education of employees and through them, of their families.
   Literature, films, and special talks, on first aid, accident prevention, and health topics, offer other opportunities for instruction. We find our pamphlet racks frequently require refilling. We believe employees are interested and ready to receive whatever instructions we are willing to give them.
3. **early diagnosis** is another aim in present day industrial health programs.
4. **industrial hygiene activity** and effective accident prevention are further objectives.
5. **rehabilitation** has been badly neglected. Not enough time is devoted to it, nor is rehabilitation work started early enough. As soon as an illness or accident occurs, rehabilitation should be initiated.

The developments which I have outlined have occurred for the most part in the larger and more progressive industries. However, a trend is now apparent toward wider application of organized health programs in industry. Management is desirous of protecting its investment in manpower. If the worker's health is impaired, so is his productivity. If he loses time, the cost of training a replacement increases the cost of production. Where medical services are already available, periodic examinations are now being introduced in addition to the pre-employment examinations. In some companies, periodic examinations are limited to executive groups, or to individuals working with toxic materials or on hazardous jobs, but in other companies, the examinations have been extended to all employees.

Today, the physician in industry concerns himself principally with preventive medicine. Treatment, when required by an employee, remains in the hands of the private physician. Once a diagnosis has been made, the physician in industry refers an employee to his family physician for treatment. At the same time, he makes available to the family physician, if the employee desires it, laboratory results, x-rays, and other findings. It is evident, then, that the roles of the industrial physician and the private physician are complementary.

Health programs are being introduced into the smaller industries where previously no services have been available. As about 60% of industrial employees work in plants employing less than 500 people, a good deal of attention is being directed to the development of health services in small plants. Economically, it may appear difficult for small plants to provide medical services. One approach has been for a group of neighbouring plants to combine in the employment of physicians and nurses for part-time service at each plant.

At the present time, in Kitchener, Ontario, the professional services involved in the operation of health services, in seven small plants, are being paid for, under Federal Government Health Grants, for a two-year period. From this

project, it is hoped to obtain information on the response of the employees to the program, on the health problems which are encountered, on the corrections which can be made, on the amounts and kinds of sickness experienced, on the professional staff required, and on the cost. It is hoped that the employers in this group will continue the program at their own expense when the project ends in May, 1956. After the last war, it was found that many plants which had been engaged in the manufacture of explosives or other war materials and had set up first aid or hospital facilities of necessity, during the war, retained them afterward by choice.

In the Kitchener experiment, the local Medical Officer of Health has been interested in the initiation and operation of the project, because of its value to community health and has supplied the part-time services of a public health nurse, with experience in industry, to supervise the work of the nurses in these seven plants. Some plants in other areas have expressed an interest in this kind of arrangement. Greater impetus could be given to the establishment of health services in smaller industries, if the Medical Officers of Health would encourage employers to take this step.

Statistics are Essential

Statistics are an important part of a well developed industrial health program. If maintained with the greatest possible completeness and accuracy, they can give direction to our efforts. Morbidity and mortality rates, as well as studies of the apparently healthy, can point to fields for research. Through the use of cards, which we have recently introduced into our department, we hope to be able to make studies on cases of long term illnesses, on "repeaters", and the apparently healthy. Interesting patterns may be revealed of interrelationships between diseases and of working environment to certain conditions. These are quite as important when negative as when positive. We may be able to locate toxic problems hitherto unsuspected.

Costs of health programs can be controlled, directed, and considered, in relation to the results, when accurate records are kept and all related factors included. Admittedly, it is difficult to demonstrate the benefits of health programs in terms of dollars and cents saved. Statistics show that the early detection and treatment of such conditions as tuberculosis, cancer, and diabetes, has usually resulted in a more rapid rehabilitation of the employee.

Statistics are becoming more important as a greater body of evidence is being built up from which more accurate deductions can be made. We find that we are receiving requests for statistical information, more frequently, from groups such as The Canadian Arthritis and Rheumatism Society and the Ontario Workmen's Compensation Board.

In industry, a uniform system of medical record keeping would be most helpful, so that true comparisons could be made from industry to industry and locality to locality. Some preliminary studies have been made along this line by the Bureaus of Business Research of both the University of Michigan and the University of Pittsburgh for the Department of Health, Education and Welfare, in Washington. The results of the work have not yet been published.

In Canada, I believe, preliminary studies are under way in the Federal and in some Provincial health services. We, ourselves, are interested in obtaining comparative figures on lost time due to sickness, according to duration, frequency, location, age, sex, occupation and diagnosis, as well as on conditions found on examination of the apparently healthy and on the cost of health services.

There is a rapidly increasing interest in all aspects of health throughout the world. I have noted this, personally, in Canada, the United States and on a visit last year to Great Britain and some other West European countries. The concept of health in industry has extended beyond mere sanitation, first aid and the prevention of accidents, to include placement of the handicapped, industrial hygiene, early diagnosis and rehabilitation. Governments, universities, private research organizations and foundations, individual companies and labour organizations are all supporting, or actively participating in, the occupational health field. To avoid overlapping and duplication of effort, the scope and aims of the different agencies must be understood. The ultimate goal of all is a safe working environment and the maintenance of employee health.

Industries which now support health services use community resources, including those for public health, as a regular procedure in assisting employees with problems which arise outside, as well as at their work. In Canada, the financial burden of illness is being eased for the individual through comprehensive hospital and medical service plans. Free diagnostic and treatment clinics are available for many chronic and long term illnesses. It was recently announced in the press that further benefits for victims of long term illnesses will be discussed at the Dominion-Provincial Conference.

Occupational Medicine—A Specialized Field

Occupational Medicine is growing in prestige and is recognized as a specialized field. Medical and Nursing Schools accept this fact. Across Canada at our Company Health Centres, we are asked to provide field work and lectures to both undergraduate and post-graduate students in nursing and medicine. Arrangements range from a Health Centre tour and lectures to 1 to 2 weeks' observation and practice. Other companies co-operate in the same manner with the Medical and Nursing Schools. At the University of Toronto it is now possible to earn a Diploma in Industrial Hygiene as well as a Diploma in Public Health. Other universities offer post-graduate courses in Occupational Medicine of 1, 2 or 3 years' duration. A number of medical societies and academies have formed separate sections on occupational medicine. I believe that the American Medical Association accepts refresher courses in industrial medicine as credits toward retention of certification in the field of General Practice.

With the growing acceptance of industrial health programs today, it follows that the next step forward should be to raise their standards. Years ago in the United States of America, the American Medical Association, through the American College of Surgeons, inspected and certified various first aid centres

as being satisfactorily equipped and staffed to carry out the programs which, at that time, consisted largely of adequate first aid and emergency measures. They were staffed by first aid men or nurses and part or full time physicians, the latter usually being chosen because of their proficiency and interest in traumatic surgery. More recently, the American Association of Industrial Physicians and Surgeons changed its name to the Industrial Medical Association. The Industrial Medical Association has a considerable membership in Canada, as well as the United States, and some in other countries. Through its interest and efforts, occupational medicine has received great stimulus. The American Medical Association now has a new board called the American Board of Preventive Medicine Incorporated, which will certify specialists in Public Health, Aviation Medicine and Occupational Medicine,—the latter being the last to be included in this organization.

The organizations sponsoring this venture are the American Medical Association, American Public Health Association, Association of Schools of Public Health, Canadian Public Health Association, Southern Medical Association, Aero Medical Association, American Academy of Occupational Medicine, Industrial Medical Association.

The purposes of the American Board of Preventive Medicine Incorporated are:

1. To encourage the study, improve the practice, elevate the standards and advance the cause of preventive medicine;
2. To grant and issue to physicians, duly licensed by law to practice medicine, certificates of special knowledge in the various fields of Preventive Medicine. The fields in which certification is granted are Public Health, Aviation Medicine, and Occupational Medicine.

The general requirements are:

1. Good moral character and high ethical and professional standing;
2. Graduation from a medical school in the United States or Canada, approved by the Council on Medical Education and Hospitals of the American Medical Association, or from a foreign school satisfactory to the Board;
3. An internship of at least one year in a hospital, approved by the Council on Medical Education and Hospitals of the American Medical Association or in a foreign hospital satisfactory to the Board; and
4. Licensure to practice medicine in the United States or in the Dominion of Canada.

The special requirements for each of the three certifications in Public Health, Aviation Medicine and Occupational Medicine are stated in a booklet prepared by the American Medical Association. In line with this policy of certification of specialists, the Industrial Medical Association has also developed a plan for approving the medical services of industries.

The Occupational Health Institute

The Occupational Health Institute, established in 1954 by representatives of business and the medical profession as a non-profit, tax-exempt trust, is the successor organization to the American Foundation of Occupational Health, founded in 1945 by the Industrial Medical Association.

Functions which the Occupational Health Institute has taken over from the Foundation are:

(1) evaluation and certification of medical services of industry

(2) studies and surveys of medical services and

(3) sponsorship of medical residencies and post-graduate training in industrial medicine.

To be certified, a plant must meet the following qualifications which read, as set forth on the certificate:

1. This establishment has an organized medical department with competent medical staff, including consultants. It has policy, procedures and facilities for adequate emergency dispensary and hospital needs and personnel to assure efficient care of the ill and injured.
2. Membership on the medical staff is restricted to doctors and/or nurses who are (a) graduates of acceptable schools of learning with degrees of Doctor of Medicine and Registered Nurse respectively, in good standing and licensed to practice in their respective states or provinces, (b) competent in the field of medicine and nursing as applied to industry, (c) worthy in character and matters of professional ethics.
3. Facilities are available for the performance of competent preplacement and periodic medical examinations in keeping with existing needs of the organization.
4. A system of accurate and complete records is maintained. Such records include, particularly, a report of injury and illness, description of physical findings, treatment, estimated period of disability, and results, as well as other information pertinent to the case or required by statute for Workmen's Compensation claims and other purposes. All medical records are regarded as confidential material, filed under medical supervision and maintained only in the medical department.
5. Employees requiring special care are referred to competent consultants.
6. The medical department has general supervision over the sanitation and industrial hygiene of the plant which has to do with the health and medical welfare of all employees.

This certificate of Health Maintenance, while rather broad in its outline is felt to be adaptable to smaller industries as well as to the larger ones, provided they fulfill the requirements of the six phases outlined in the certificate.

It is hoped that you, as members of the Canadian Public Health Association, will feel that efforts along this line will be of definite interest and value to you and to the community, and that you will encourage and promote such services.

Having looked back over the road along which industrial medicine has come, we should now look forward to the way that lies before us. I should like to leave this thought with you. In view of the expansion in public health horizons, it has been suggested to me that the Canadian Public Health Association might wish to assist in fostering and promoting the development and operation of health services in industry. Each member of the Canadian Public Health Association can play an active role in encouraging industries, whether large or small, to establish health units and to help them meet and maintain the standards of staff, equipment, and records, outlined by the Occupational Health Institute and to co-ordinate their efforts with other health agencies, hospitals and schools, in order to obtain the maximum benefit for the community as a whole.

REFERENCES

"Maintaining the Man Behind the Machine" by the Occupational Health Institute. Bulletin of The American Board of Preventive Medicine, Inc., 1955.

Some Factors Relating to Breast Feeding in New Brunswick

J. R. MAYERS, M.D., B.S., D.P.H.[1]

A brief survey of breast feeding habits was carried out in New Brunswick in 1954–55 to obtain information concerning the reasons why mothers fed their infants naturally or artificially.

It is agreed that breast feeding is a "good thing" and it should be unnecessary today to document the evidence that exists to confirm its value. It is established that breast feeding contributes to better health and to lower infant mortality.

A simple questionnaire was prepared consisting of the following thirteen questions concerning each infant that was the subject of inquiry: (1) age in months at time of inquiry; (2) sex; (3) number of siblings; (4) place of birth; (5) was birth attended by a doctor; (6) was the child being breast fed; (7) if not, had it ever been breast fed; (8) at what age was breast feeding stopped; (9) why was breast feeding stopped; (10) did the child leave hospital breast fed; (11) was any instruction given on the importance of breast feeding prenatally or postnatally; (12) did the mother have regular prenatal care and finally (13) has the mother had a postnatal examination.

These questions were asked by the public health nurses and the V.O.N.'s in the province in relation to the first twelve new attendants at each of their child health conferences. Information was obtained from approximately 95 child health conferences throughout the province relating to 1,064 mothers. The information was not obtained from a representative sample of the community. However, one or two suggestive hints have been obtained.

Attempts at breast feeding were counted only if the attempt lasted for more than three days, as it was considered that any shorter period did not allow for the establishment of adequate lactation. It was desired to define regular prenatal care as care commencing not later than the fifth month of pregnancy and being continued with usual visits until birth. However, the information was not adequate and the quality of prenatal care is therefore in doubt. When postnatal care was specifically mentioned it was found that a number of the mothers who claimed to have a postnatal examination had in fact not had a pelvic examination. Consequently these findings are also in doubt.

Mothers Who Breast Fed (1064 cases)

Of the mothers interviewed, 262 had breast fed their infants. The proportions in various counties ranged from 7% to 37%, but as the numbers in each county were so small the figures cannot be considered significant. In the province, the percentage of breast feeding was approximately the same in both rural and urban populations.

[1]Department of Health and Social Services, Fredericton, New Brunswick.

Relation to Size of Family (1064 cases)

No relationship was evident between family size and the tendency of the mother to breast feed. The mean family size for the whole group, for the proportion that breast fed, and the proportion that did not breast feed was 3.9 children in each case. The range was 1 to 19 children and the family sizes most frequently occurring were of 2, 3 and 4 children.

The Age at which Breast Feeding Stopped (275 cases)

These figures include non-breast feeders also, i.e. who breast fed for three days or less (Table I).

TABLE I

AGES OF INFANTS WHEN BREAST FEEDING WAS STOPPED (275 cases)

Age of infant when breast feeding was stopped	Total	3 days and under	4–7 days	8–14 days	15 days 1 month	2 months	3 months	4 months	5 months and over
	215	13	23	27	47	54	23	14	14
Age of infant still feeding	60	—	—	1	13	13	9	3	21

Reasons for Stopping Breast Feeding (368 cases)

In this group are included mothers who breast fed for three days or less. The reasons given by the mothers for not breast feeding or for stopping are presented in table II, with the time at which breast feeding was discontinued. The categories "mother did not try", or "did not want to" are probably reliable. The first and largest category, i.e. "no milk", "not enough milk", "baby not satisfied", includes statements such as "too much milk, baby unsatisfied", which cast doubts on the validity of the whole group as genuine reasons. It is interesting that this large block of reasons consists of vague statements of the mother, and a comparatively small number suggest an organic cause for non-lactation or that profession advice was given against it. (Table II).

It is interesting to note that many of the reasons given for not breast feeding would probably disappear if simple prenatal education were given and the number of the other reasons would be reduced by proper prenatal education, medical care and proper breast care. In fourteen replies, prematurity was given as the reason, denying to the infant the great benefit of breast milk. Included under "vague disorders of the infant" are conditions that could be removed by advice on the regulation of milk, for instance diarrhoea from overfeeding.

The reasons for discontinuing breast feeding among those who were delivered in hospital are presented in Table III.

Out of the 22 cases, perhaps 16 or 17 would have responded to adequate breast care or general prenatal education and care.

Relation to Place of Birth (1064 cases)

Of all the mothers 14% were delivered at home and 86% in hospital. Of those who did not breast feed, 10% were delivered at home and of those who did

TABLE II

REASONS GIVEN BY MOTHERS FOR NOT NURSING OR DISCONTINUING NURSING

Reason	Total	Not breast feeding	Stopping at under 3 days	4–7 days	8–14 days	15 days 1 month	2 mos.	3 mos.	4 mos.	5 mos.
1. No milk Not enough milk Baby would not nurse Baby not satisfied	124	16	6	12	19	26	25	10	8	2
2. Mother did not try	61	61								
3. Mother did not want to	46	42	1				3			
4. Too much work and no time	9	2				1	4	1		1
5. Vague illness of mother	40	15	1	3	1	9	6	3	2	
6. Caesarian section	1	1								
7. Tuberculosis of mother	4	4								
8. Mother pregnant	1								1	
9. Inverted, cracked retracted nipple	20	6	4	5	3		1		1	
10. Blockage of milk duct, breast abscess	10	1		1	4	1	3			
11. Doctor advised against	15	8	1		1		3	1	1	
12. Baby old enough	6							1	1	4
13. Baby premature	14	9				1	4			
14. Vague disorder of baby	10		1	1	2	3	2	1		
15. Others	7	2				1	4			

breast feed 25% gave birth at home. Of all the births that took place at home 45% breast fed while of births that took place at hospital only 23% breast fed.

Relation to Regular Prenatal Care (1064 cases)

Of all the group 85% had prenatal care. Of those not breast feeding 85% had prenatal care, and of those breast feeding 83% had prenatal care. The quality of the prenatal care is not known.

Relation to Instruction on Breast Feeding (1064 cases)

Some instruction on the value of breast feeding was given either prenatally or postnatally to 32% of all mothers; to 61% of the mothers who breast fed and to 21% of the mothers who did not breast feed.

Relation to Postnatal Examination (1064 cases)

Of all mothers 58% had a postnatal examination or were to have an examination at 6 weeks. Of the breast feeding group 60% had postnatal examination or were going to have an examination at 6 weeks. Of the nonbreast feeding group 57% had or were going to have a postnatal checkup at 6 weeks. When the question was specifically asked concerning this examination it was learned that

TABLE III

REASONS GIVEN BY THOSE WHO BEGAN TO BREAST FEED IN HOSPITAL BUT DID NOT LEAVE HOSPITAL BREAST FEEDING (22 CASES)

Reason for stopping	Total	Duration of breast feeding effort				
		1 day	2 days	3 days	4–7 days	7–14 days
1. Mother did not want to	1	1				
2. Baby would not nurse	2		1	1		
3. Insufficient or no milk	7		1	2	4	
4. Mother jaundiced	1	1				
5. Doctor's orders	1		1			
6. Inverted nipple	3				3	
7. Cracked nipple	3		2		1	
8. Breast abscess	1					1
9. Unable to re-establish lactation when baby left in hospital for circumcision	1			1		
10. Unknown	2		2			

a pelvic examination had not been included. The quality of the postnatal checkup is therefore in doubt.

DISCUSSION

The questions were asked because it was considered that some useful information might be obtained regarding general factors associated with breast feeding. It appears that the bulk of the reasons for not breast feeding are purely subjective and should, therefore, be amenable to education. It also appears that since appreciably more of the mothers who breast fed gave birth at home than those that gave birth in hospital, hospitals and doctors are not playing an adequate part in promoting breast feeding. There is also a slightly negative suggestion that the mothers who breast fed had less prenatal care than those who did not breast feed, and apparently being left to themselves more, breast fed more. This is countered by the fact that rather more of the breast feeding group seemed to have had a postnatal examination or expressed the intention of having one. The interesting point on the positive side is that a considerably higher proportion of the mothers breast feeding had received some instruction on the value of breast feeding.

CONCLUSIONS

It appears that a considerable proportion of non-breast feeders could be "converted" by adequate prenatal education and that a proportion of those who start but fail, could be carried to a successful conclusion if proper care in the home and the hospital was available. These findings point the way to a public health approach to the problem.

ACKNOWLEDGEMENTS

Thanks are extended to the Provincial Public Health Nurses and Victorian Order Nurses for undertaking this additional work and making possible this study.

Canadian Journal of Public Health

EDITORIAL BOARD

R. D. DEFRIES, M.D., D.P.H., *Editor*

J. T. PHAIR, M.B., D.P.H., *Associate Editor* JOYCE HOWES, *Editorial Assistant*

J. H. BAILLIE, M.D., D.P.H. GORDON BATES, M.D. A. E. BERRY, M.A.SC., C.E., PH.D.

J. G. CUNNINGHAM, B.A., M.B., D.P.H. C. E. DOLMAN, M.B., PH.D., D.P.H., F.R.C.P., F.R.S.C.

EDNA L. MOORE, REG.N.

G. D. PORTER, M.B. A. H. SELLERS, B.A., M.D., D.P.H.

F. O. WISHART, M.A., M.D., D.P.H. J. WYLLIE, M.A., M.D., CH.B., B.SC., D.P.H.

FLUORIDATION OF PUBLIC WATER SUPPLIES

FLUORIDATION of municipal water supplies has been the subject of much controversy and many mis-statements have been made by those opposing mechanical fluoridation. The data presented in recent issues of the Journal relating to the ten year experience of Brantford, Ontario, are convincing facts that speak for themselves. Last fall, the Metropolitan Board of Greater Toronto planned to undertake the fluoridation of the water supply of Greater Toronto. Forest Hill Village, one of the constituent municipalities, challenged the authority of the Metropolitan Board and entered an appeal to the Supreme Court of Ontario. The unanimous decision handed down by the Court last March is of far reaching importance. The judgement expressed the opinion that the Ontario Legislature had not intended that a municipality should be given power to prescribe medicinally for the health of its inhabitants by adding to the water supply anything such as fluoride for the purpose of improving the general health of the community. The court made it clear that its decision had no bearing whatever on the merits or demerits of fluoridation and that the court dealt only with the legislative power of the respondent corporation. As a result of this ruling, the municipalities in Ontario which are fluoridating their water supplies, find themselves without authority for such action. The decision has raised the question of the right of municipalities to chlorinate water supplies. As a result, the Department of Health of Ontario has been asked by several municipalities to clarify the situation with suitable legislation, giving the municipalities the authority which is apparently lacking.

In the discussions of fluoridation, frequent mention is made of municipal authorities holding referendums on fluoridation. Such action is most undesirable. It may well be asked how far would chlorination of water have proceeded in 1911 if its value in eliminating typhoid fever was to be determined by a popular vote of the public, who were not in a position to judge the validity of the statements made, both by the supporters and opponents of the measure. How impossible too, would have been the control of diphtheria through the use of diphtheria toxoid if the public had to decide on the arguments of those opposed to vaccination in any form. The question raised is much more important than the issue of fluoridation. The Medical Officer of Health is the recognized authority in health matters and it will be most un-

fortunate if the responsibility placed in this officer by the Public Health Act be overlooked and the vote of the electors replace a decision based on sane, scientific judgement. The decision must be made on scientific facts and not by public referendum.

In Winnipeg, legislation has permitted municipalities to obtain the necessary authority to fluoridate water by applying to the Minister of Health. The Department of Health requires that their engineers supervise the installation and have the right to inspect it regularly. It is expected that the water supply of Greater Winnipeg will now be fluoridated as supplementary legislation passed at the last session of the Legislature provides, that if five of the nine municipalities having 85% of the total population request fluoridation, that authority will be given. It provides also, that after five years, if four municipalities representing 20% of the population ask that fluoridation be discontinued, Water District Board must comply.

Valuable information relating to the safety of fluoridation is supplied in a study of children in Newburgh and Kingston, New York. This study[1] is being made by members of the New York State Department of Health and the Albany Medical College. In Newburgh, the water supply has been fluoridated for the past ten years. A nearby community, Kingston, has been used in a control study, as the drinking water is essentially fluoride free. A group of 900 children have been studied closely over a period of ten years for possible systemic effects of drinking fluoridated water. The children have been given careful paediatric examinations, measurement of height and weight, x-ray of the wrists and knees, blood cell counts and special ophthalmologic and otological examinations. No significant deviations in the factors studied have been found as compared to the control group. A routine urine analysis, including testing for albumin and sugar and examination of centrifuge sediments have been conducted. A more refined method to determine possible kidney damage has been employed in view of published reports of damage in animals, following prolonged administration of highly toxic amounts of fluoride several hundredfold greater per unit of body weight than the amounts used in water fluoridation. A special study was conducted in a group of 100 boys, 12 years of age, in Newburgh, who had been exposed to fluoridated drinking water for about 8 years and of a similar group of boys in Kingston. The study included the quantitative excretion and casts in 12 hour urine specimens. The differences found tended to favour the Newburgh children. No medical significance could be attributed to any of the differences.

Fluoridation is established as a safe, effective and practical method for reducing very substantially the amount of dental caries.

THIS IS OUR HERITAGE

PROFESSOR Roy Fraser, B.S.A., M.A., F.R.M.S., Head of the Department of Biology for more than 35 years at Mount Allison University has contributed much to public health, training his students in personal hygiene and

[1]Schlesinger, E. R., Overton, D. E., and Chase, H. C.: J.A.M.A., 1956, *160*: 21.

interesting them in community health problems. He was honoured by the Canadian Public Health Association at the forty-fourth annual meeting in Saint John last month, receiving honorary life membership.

His address on Founders Day presented at Mount Allison University was an inspiring challenge to graduates and undergraduates alike at the University. In order that members of the Canadian Public Health Association may share in honouring Professor Fraser who, through serious illness, was unable to be present at the annual meeting, the following paragraphs from his address are presented:

". . . One's love for his university is due not only to its principles and ideals however great they may be. It is compounded of many things that outsiders might consider small and unimportant—little things, and yet how dear in recollection,—subtle things, and yet how clear to those more sensitive perceptions that bless our college days. . . . The sunlight on the water over by Beausejour,—the big white clouds sailing up Fundy, like the billowing white sails of the old clipper ships that were the glory of these provinces,—the kindly folk of this good town, and their gracious hospitality to young people far from home,—the little yellow August flowers dancing in the Tantramar wind,—the exquisite woodsy fragrance of a little bunch of Mayflowers on a spring day,—the spot on the campus where you said goodbye to a boy who went to war, and didn't come back,—the colored lights of the campus Christmas tree glowing through the falling snow,—the voices of the Senior Class singing in their last chapel,—the voice of the President conferring a degree,—the ache in your throat and the blur in your eyes as you turn to look back at the old Hill for the last time. "Sentiment" you say? Certainly! Subtract from life the things that men and women love today and hold in tender recollection tomorrow—and what possible meaning or worth could there be in what's left?

But our greatest heritage of all is not ours alone. No one person owns it, for it was bought by one Man at a great price, and given to all the world as a free gift. It is a simple thing—two pieces of wood, nailed together. Walk as you will every pathway that the intellect may map out in its search for truth,—pursue as you will every research that will help you to understand the laws of Nature and the ways of man—analyze as you will the motives that caused the events of mankind's history,—set forth your philosophical explanation of the riddle of our existence,—and in all your searching you will find no meaning that will completely satisfy the deepest wonderings and longings of your heart. And at the very end of it all, having tried everything else, you will find at last the only thing that can give hope and meaning and purpose and happiness to human life. You will raise your eyes, and find yourself looking at—two pieces of wood, nailed together. . . .

Up through time and space, across the continents and across the centuries, "from earth's wide bounds, from ocean's farthest coast," come the armies of God, singing through the darkness, undaunted, unconquerable.

And up at the very head of the long column the Cross goes forward . . . the Cross, under an escort of the twelve legions of angels that Christ would not summon to His aid in Gethsemane . . . the Cross, followed by the millions of men and women who have loved the Man who died on it."

Poliomyelitis in the Saguenay District, Quebec in 1954

GEORGES CÔTE, M.D., D.P.H.
Officier-Médical, Unité Sanitaire
Chicoutimi Nord, Québec

THE towns, villages and parishes of this extensive area are located on the Saguenay River and around Lake St. John. Chicoutimi is the major centre. The Aluminum Company at Arvida employs a large number of workers. Farmers in the district work also in lumbering and in the large paper plants.

Poliomyelitis is not a new disease in this part of the Province of Quebec. Outbreaks have occurred in the last decades and each year a few isolated cases are recorded. The first case was reported on June 8 at Roberval and on June 27 Chicoutimi had its first local case. In all, 287 cases were recorded. In May and June–5 cases, July–29, August–124, September–110, October–15 and November–1. The crest of the epidemic was reached in August when 43% of the cases were recorded and in September 39%. The distribution of cases in the area indicated that the centre of the outbreak was the Chicoutimi region, nearly 70% of the cases occurring in that area. In the small town of Chibougamau, population 460, the incidence rate was 2,826 per 100,000 population. In Chicoutimi, population 35,738, the rate was 213; Arvida, population 11,395, rate 135; and Jonquiere, population 25,000, rate 124. Fourteen municipalities with smaller populations had incidence rates under 100. While Chibougamau is not part of the Chicoutimi–Lake St. John area proper, it has been included in this study. It is a new mining centre and connected with Chicoutimi by a single road. The first case occurred in Chibougamau on July 25 more than a month later than the first one observed in Lake St. John epidemic. Sixteen cases reported were hospitalized in Chicoutimi and all occurred in the last week in July and the first weeks of August. There are reasons that suggest that the cases which occurred in Chibougamau were linked with those recorded in the Chicoutimi–Lake St. John area.

Distribution of cases by sex showed 159 males and 128 females. The highest incidence was in the age group under five years, 174 cases (61%) being reported. The group 20 years and over contributed 16 (5.5%). More than 61% of the cases were included in families that could be classed as well-to-do persons. Approximately 78% of the cases occurred in families with good hygienic habits and only 12% lived under unsanitary conditions.

Clinically, the disease presented an almost baffling polymorphism; 213 patients had paralysis (74%). There were 42 cases of paraplegia, 23 of true hemaplegia, 68 of monoplegia, 18 of spinal or total paralysis and 16 bulbar paralysis. There were also 6 cases of strabismus and 30 facial paralysis. There were many mild or abortive cases. Only a small proportion of these persons were reported to the health department and probably only a small proportion of the total number affected by the outbreak were recognized.

Epidemiological Factors

In regard to family infection, two or more cases occurred in nine families. Seven of these had two cases and almost all occurred simultaneously ex-

TABLE I

No. of Cases	Kind of Trauma	Form of Poliomyelitis	Death	Orthopaedic Appliance
9	Injection in buttock	Bulbar	yes	
33	Cut toe	Paralysis rt. leg		yes
34	Injection rt. buttock	Paraplegia		yes
41	Injection in buttock	None		
51	Injection rt. buttock	Paralysis rt. leg		yes
59	Injection rt. leg.	Paraplegia		
60	Fall on head	Paralysis rt. leg		yes
67	Injection rt. buttock	Paralysis rt. leg		
76	Fly sting on face	Rt. facial paralysis		
85	Injection rt. buttock	Bulbar	yes	
95	Injection rt. buttock	Paralysis rt. foot		
96	Buttock vaccination	Paraplegia		yes
106	Fall on forehead	Paralysis left arm		
107	Injection in arm	Convergent strabismus		
114	Fall lumbar region	Bulbar	yes	
115	Fall on right side	Paralysis rt. arm		
120	Fall on head	Hemiplegia, right		
127	Injection left buttock	Paralysis left leg		
141	Fall on buttock	Paraplegia		yes
146	Fall on buttock	Paraplegia		
160	Fall on right buttock	Monoplegia, right		
171	Fall on elbow	Paraplegia		
245	Injection right buttock	Paralysis rt. leg		
254	Fall	Paraplegia		

cept in one family where two cases occurred, one on August 22 and the other on October 3. In one family three persons contracted the disease on August 2, 6 and 10 respectively. The bulbar form caused death in the last case. In one family, four children were affected by the disease and the four cases did not occur at the same time. The first case involving a girl of 17 years occurred on August 17; the second, five years old, on August 25; the third, nine years old on August 29 and on September 1 a ten year old child. There were 16 deaths recorded (5.5%). Prompt diagnosis and adequate treatment undoubtedly reduced the death rate. Reporting of cases was not satisfactory as there was an interval between the date of diagnosis and the date of reporting. Much effort was required to trace more than 90 cases, concerning whom no reports had been received.

A total of 47 cases were found that might have been contaminated by an individual during the period of contagion, either with a relative or a neighbour where there was a case of poliomyelitis. In 55 cases there had been a more or less lengthy stay in a locality where poliomyelitis was occurring. In all, 13% (37 cases) had attended group meetings during the incubation period. In regard to drinking water, there were 112 using water which may have been polluted, and 54 used chlorinated water. In regard to sanitary conditions 199 of the cases occurred in communities with sewerage systems. In 30 cases investigators recorded the presence of flies in the home. Consumption of green vegetables was recorded in 154 cases and 114 ate unwashed raw fruit.

Factors Which May Be Considered As Favouring the Localization of Paralysis were Considered

Tiredness or a chill during the days immediately preceding their illness was recorded in 84 cases (29%). Only

29 of the 287 cases replied affirmatively to the question relating to bathing. In regard to the history of tonsillectomy performed in the preceding 12 months, there were 7 cases in 2 of which bulbar paralysis developed. Recent tooth extraction was recorded in 9 cases, two of them had a bulbar form of paralysis of poliomyelitis and one died. In regard to injuries received during the incubation period, 29 patients had suffered traumatism of some kind or 10%. Of the 29 cases, 9 had a serious form of the disease, 3 of the cases died following bulbar localization and 6 others have to wear an orthopaedic appliance during the years to come. The three bulbar form cases had received an intramuscular injection in the buttock during the incubation period of their disease.

Treatment and After Effects

Of the cases 233 were hospitalized in Chicoutimi. No residual effects were found in 107 and in 109 more or less serious after effects were recorded. These cases are receiving appropriate treatment. Only 16 require the wearing of an orthopaedic appliance (5.5%).

Prevention through the use of Gamma Globulin

A supply of 3,293 vials of gamma globulin was made available. Among the 287 poliomyelitis cases, our study recorded that 76 had received an injection of gamma globulin, the dose being appropriate to the weight of the patient. Of the 50 cases developing paralysis, the records indicated that 43 had received gamma globulin either the same day or during the days that followed the developing of the paralysis. Only 7 of the cases (9%) therefore should be considered in evaluating the value of gamma globulin. The data are presented in Table II.

TABLE II

Case Number	Date of Paralysis	Administration of Gamma Globulin
4	October 5	August 29
53	September 12	September 9
66	September 19	September 12
69	August 30	August 27
99	September 29	September 22
166	July 1	June 26
181	September 2	August 11

In addition, case 4 should be excluded as the interval between the date of administration and the date of paralysis was approximately five weeks and the protection from gamma globulin is not considered to last longer than three weeks. Six cases remain which may be considered as cases in which protection was not afforded (8%). The protection rate of gamma globulin may therefore be considered as 90%. When the epidemic was raging with particular intensity in Chibougamau, the services of our staff were requisitioned by the provincial government in an effort to check the disease. Gamma globulin was administered to 60% of the population and not a single case was subsequently reported.

Conclusion

In spite of thorough study no common epidemiological factors were discovered. The occurrence of a comparatively small number of patients with after effects indicates that the patients were adequately treated. The preventive value of gamma globulin is unquestionable when used early in the incubation period of the disease.

The Canadian Public Health Association 1955-1956

PART I

REPORT OF THE HONORARY SECRETARY

G. W. O. Moss, M.D., D.P.H.

LAST YEAR the report of the Honorary Secretary commenced with the observation that many years had elapsed since the Canadian Public Health Association met in Edmonton, the site of the 1955 annual meeting. One might make the same observation this year when the Association's forty-fourth annual meeting will be held in the City of Saint John, May 29, 30 and 31. We last had the pleasure of meeting in Saint John in June 1933.

The forty-third annual meeting in Edmonton was an outstanding success. The Alberta Division of the Canadian Public Health Association is to be highly commended for its achievement in this endeavour. But in their turn, other provincial branches will undoubtedly not be outdone. Outside of some co-ordination of activities with the special facilities of the central office, the planning and management of conjoint annual meetings is carried by members of the provincial organization.

With the establishment of the eight provincial or regional public health organizations across Canada, it is now possible for the Canadian Public Health Association to hold its annual meeting in conjunction with one of these provincial organizations. Whereas the Association formerly met regularly in the large urban centres and only rarely in other centres of the country, the present arrangement assures all areas of Canada a regular opportunity to share in the annual meeting activities of the Association. Moreover, in the intervening years, in any one part of the country interest in public health society activity is sustained by the functioning of an active provincial or regional organization. In Canada there now exists a unified national public health association.

One cannot proceed further with this report without expressing, on behalf of the Executive Council, a word of appreciation and tribute to our President, Dr. J. A. Melanson, Chief Medical Officer of the Province of New Brunswick. For many years Dr. Melanson, as a member of the Executive Council, has engaged in the activities of the Association. During his tenure of office as President, Dr. Melanson has further exhibited his interest in the affairs of the Association and in particular has contributed greatly to the successful planning of the forty-fourth annual meeting.

The activities of the various standing committees have increased. However, more can be done. In order that the Association present broad composite views it is necessary that committees, with their nation-wide representation and special qualifications co-operate fully with the Executive Council and, during the period between annual meetings, with the Executive Committee. The strength of the Association rests with such committee activity and an increased voluntary effort on the part of members is solicited.

Dr. J. S. Kitching of Hamilton has continued his work on the revision of the Association's constitution and by-laws. It will be recalled that a comprehensive revision was presented to the Executive Council during its meeting in Edmonton last September. As it was felt that there were additional points warranting further consideration Dr. Kitching was asked to pursue these. Dr. Kitching feels he has now carried this revision as far as possible under the terms of the Charter of the Association, which was granted by an Act of the Canadian Parliament in 1912. It is perhaps little known how much the Association is privileged to have been incorporated by a Special Act of Parliament and the prestige of the Association has been further enhanced by the many years that it has been in existence. The Association is deeply appreciative of the many hours of work given to this matter of the constitution by Dr. Kitching.

Since the Edmonton meeting the nucleus of the Executive Committee has met on several occasions to consider matters of policy relating to the forthcoming annual meeting and other correspondence. The Association was again asked by the Royal College of Physicians and Surgeons of Canada to nominate from its membership individuals to serve on the College's Specialty Committee in Public Health.

The Executive Committee authorized the Honorary Secretary to proceed with the planning of a revision of the Association's report on Recommended Qualification Requirements and Minimum Salaries for Public Health Personnel in Canada which was last revised in 1951. In this connection it will be necessary to budget for part-time secretarial help in as much as our present salaried staff of two are currently fully occupied with the Journal and other routine matters of the Association. This will also require voluntary assistance from such standing committees as the Committee on Professional Education as well as from members of the various sections of the Association.

The Executive Committee also received a petition from more than the requisite number of members of the Association asking that a Medical Care Section be established within the Association. Permission for the establishment of such a section was granted. The new Medical Care Section will hold its inaugural organization and business meeting during the current annual meeting in Saint John. In the light of recent developments in respect to health insurance in Canada, the organization of such a section is a most timely and valuable step.

A few words about the location and dates of future meetings are indicated. Although the Executive Council gives consideration to a location three years in advance, it has become increasingly difficult in some cities to secure the type of accommodation we require at a suitable time, simply because hotel bookings for convention purposes in some centres are being taken up as much as five years in advance. It is important for our membership that we have a late spring or very early fall gathering. The 1957 meeting will be held in Toronto in conjunction with the Ontario Public Health Association during the week of May 26. The 1958 meeting will be held in Vancouver in conjunction with both the British Columbia Branch of the Canadian Public Health Association and the Western Branch of the American Public Health Association during the

week of May 18. Reservations for hotel convention space have been made in both instances.

The Society of Medical Officers of Health of Great Britain celebrated its one hundredth anniversary in May 1956. The Canadian Public Health Association presented a resolution of appreciation and congratulation to the Society on this memorable occasion.

Mrs. Joyce Howes and Miss Irene Dyment have faithfully discharged their duties. The affairs of the Association are being carried out by a full-time salaried staff of two. Mrs. Howes devotes the major portion of her time to the Canadian Journal of Public Health of which she is Editorial Assistant. Miss Dyment besides assisting Mrs. Howes is responsible for the membership and circulation records, general typing and bookkeeping. The officers of the Association who deal with the central office are most appreciative of their efforts.

REPORT OF THE HONORARY TREASURER

William Mosley, M.D., D.P.H.

OPERATIONS FOR THE FISCAL YEAR ending December 31, 1955, show an excess of revenue over expenditure in the amount of $4,154.95. In view of the fact that three years ago there was a deficit of over $5,000, the last two years' excess of revenue over expenditure is encouraging.

It will be noted in the outline of expenditures that there appears to be a significant increase in the postage of the Journal and mailing costs as compared to 1954. This is explained by the fact that the total costs of handling the Journal, printing of envelopes etc., is included in this year's statement. This was not so in previous years.

There continue to be three major sources of revenue. From the Provincial and Federal Governments the Association derives an income of $12,300.00, which is the same figure as 1954. The revenue from Journal subscriptions and membership fees amounted to $6,484.35 which is a slight increase over last year. Thirdly, there is the income from advertising in the Journal—a net amount of $5,211.09, showing an increase over advertising in 1954.

The largest expenditure as usual related to the printing of the Journal which amounted to $12,913.89. This is exclusive of the salary of the editorial assistant who devoted a major portion of time to it.

The correspondence course in sanitary inspection and the examinations for the Certificate in Sanitary Inspection (Canada) showed small surpluses. There is no charge for salaries against the operation of the correspondence course by the Association's staff. This is provided as a service to health departments.

Again the Association is indebted to the School of Hygiene, University of Toronto, for continuing to provide office space and other facilities so essential to our work.

Appended are the audited statements for the year 1955.

CANADIAN PUBLIC HEALTH ASSOCIATION

REVENUE AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31ST DECEMBER, 1955

EXPENDITURE

	Schedule A
Printing	$12,913.89
Postage on Journal and Mailing Cost	1,239.95
Honoraria	220.00
Salaries	5,349.92
Travelling	213.50
Stationery and Office Supplies	169.93
Postage, Telephone, Express	613.65
Unemployment Insurance	46.80
Commissions Paid	556.50
Annual Meeting	1,367.27
Laboratory Section	912.74
Sanitary Inspectors—Examinations	299.35
Manuals	479.47
Correspondence Course	225.93
Reprints	1,571.87
Ontario Public Health Association	480.10
Committee on Membership	60.32
Miscellaneous Expenses	397.71
Provision for Depreciation:	
Office Furniture and Equipment	———
Bad Debts written off	8.50
Discounts and Foreign Exchange	141.40
	$27,268.80
Excess of Revenue over Expenditure for the Year transferred to Surplus Account	4,154.95
	$31,423.75

REVENUE

Advertising		$ 5,211.09
Subscriptions—less refunds		3,156.94
Membership		3,327.41
Fees for Services Rendered:		
Dominion of Canada	$5,000.00	
Province of Ontario	2,500.00	
Province of Quebec	1,200.00	
Province of British Columbia	800.00	
Province of New Brunswick	600.00	
Province of Manitoba	700.00	
Province of Saskatchewan	700.00	
Province of Nova Scotia	600.00	
Province of Prince Edward Island	100.00	
Province of Newfoundland	100.00	
		12,300.00
Annual Meeting		1,590.00
Laboratory Section		562.65
Sanitary Inspectors—Examinations		861.12
Manuals		700.00
Correspondence Course		1,512.75
Reprints		1,842.81
Interest on Investments		200.00
Savings bank account		158.98
		$31,423.75

CANADIAN PUBLIC HEALTH ASSOCIATION
BALANCE SHEET
AS AT 31ST DECEMBER, 1955

ASSETS

Cash on hand		$25.00	
Cash in bank—Current	$10,401.14		
Savings	6,479.21		
		16,880.35	
Accounts Receivable	997.34		
Less: Allowance for Bad Debts	35.00		
		962.34	
British Columbia Public Health Advance		100.00	
Deposit with Postmaster		15.00	$17,982.69
Investments and Accrued Interest			5,100.00
Canadian Journal of Public Health		1,000.00	
Office Equipment	1,774.09		
Less: Accumulated Depreciation	1,774.09	Nil	1,000.00
Prepaid Expenses			213.15
			$24,295.84

LIABILITIES

Accounts Payable			$1,110.40
Prepaid Subscriptions			350.00
Surplus			
Balance as at 31st December, 1954		$18,680.49	
Add			
Excess of Revenue over Expenditure for the year		4,154.95	
Balance as at 31st December, 1955			22,835.44
			$24,295.84

Submitted with our report of this date attached.

TORONTO, Ontario
15th February, 1956

TESKEY, PETRIE & BURNSIDE
Chartered Accountants

CANADIAN PUBLIC HEALTH ASSOCIATION
COMPARATIVE BALANCE SHEET

ASSETS

	31st Dec. 1955	*31st Dec. 1954*	*Increase*	*Decrease*	*Net Plus or Minus*
Cash on hand	$ 25.00	$ 25.00	—	—	
Cash in Current Account	10,401.14	5,442.71	$4,958.43	—	
Savings Account	6,479.21	6,320.23	158.98	—	
Accounts Receivable *less* Reserve	962.34	1,591.09	—	$628.75	
B.C. Public Health	100.00	100.00	—	—	
Postmaster	15.00	15.00	—	—	
Investments	5,100.00	5,100.00	—	—	
Can. Journal of Public Health	1,000.00	1,000.00	—	—	
Office Equipment *less* Reserve	—	—	—	—	
Prepaid Expenses	213.15	813.33	—	600.18	
	$24,295.84	$20,407.36	$5,117.41	$1,228.93	$3,888.48

LIABILITIES

Accounts Payable	1,110.40	1,276.87	—	166.47	
Prepaid Subscriptions	350.00	450.00	—	100.00	266.47
As per Revenue and Expenditure Account					$4,154.95

REPORT OF THE EDITORIAL BOARD

R. D. Defries, M.D., D.P.H., Editor
J. T. Phair, M.B., D.P.H., Associate Editor Joyce Howes, Editorial Assistant
J. H. Baillie, M.D., D.P.H.; Gordon Bates, M.D.; A. E. Berry, M.A.Sc., C.E., Ph.D.; J. G. Cunningham, B.A., M.B., D.P.H.; C. E. Dolman, M.B., Ph.D., D.P.H., F.R.C.P., F.R.S.C.; A. H. Sellers, B.A., M.D., D.P.H.; Edna L. Moore, Reg.N.; G. D. Porter, M.B.; F. O. Wishart, M.A., M.D., D.P.H.; J. Wyllie, M. A., M.D., Ch.B., B.Sc., D.P.H.

THE ASSOCIATION can well be proud of its achievement in maintaining the publication of the Journal throughout the years. The Journal is now in its forty-seventh volume, the first volume being published in 1910, at which time the name The Public Health Journal was adopted. There have been difficult times in the life of the Journal. It continued through the tragic years of two world wars and the trying decade of the financial depression of 1929. It was published during World War I when for some months the only paper that was available was newsprint. It was continuously published during World War II though drastically reduced in size. In fact, the only interruption in its publication was in 1947 when a printers' strike necessitated the cancellation of the December issue.

The files of the Journal are the source of information of the development of public health in our provincial and federal departments. Likewise it records the progress of health organizations in the municipalities across Canada. It tells the story of the commencement of public health nursing after World War I, of the successful efforts to combat venereal diseases, of the organization of full time health units and of the growing interest in the provision of more adequate medical, dental, nursing and hospital care. Today, it reflects the new appreciation of the importance of chronic diseases and of the need for medical rehabilitation.

In the early years the Journal suffered serious economic difficulties. Continuation of the Journal was made possible through the interest of a group of members of the Association who assumed the responsibilities under the name of the York Publishing Company. These members included Dr. Alan Brown, Dr. G. D. Porter, Dr. C. M. Hincks, Dr. J. G. Fitzgerald, Dr. R. D. Defries and other friends of the Association. From 1916–1928, Dr. Gordon Bates, whose contributions to public health in Canada are so well known, edited the Journal. It was in 1928 that our Association purchased the assets of the Journal and the present editor was appointed. It is of interest that the Journal has had only two editors during the past forty years. The functions of the editorial board of the Journal have been reviewed during this year and it is now recommended that representatives of the provincial branches of the Association be named and that these members be responsible for presenting the interests of the Journal in their respective provinces. It would be their duty to arrange for the collecting of papers read at the annual meeting or on other occasions and forward monthly news of their provincial association, personals and other items of interest. It is desired also that an assistant editor be appointed who would assume some of the increasing work arising from the development of plans for improving the Journal. In regard to these plans, attention is drawn to the fact that the Journal now consists of fifty-six pages monthly, making possible

the publication of a larger number of papers. In order to provide for short articles, a section entitled special articles is now provided and it is hoped that members will contribute to the new section which makes possible the reporting of new work and the recording of accomplishments that might not be presented if a complete report was awaited. In order to present as many contributions as possible, the cooperation of authors is being required to limit papers to six printed pages whenever possible. Consideration has been given also to changes in format of the Journal including the use of two columns of type in place of the present printed page. It was found that the majority of those consulted preferred the present type-setting for the formal papers. In order, therefore, to obtain the maximum number of words per page, double column printing is being used in the sections–*SPECIAL ARTICLES, BOOKS AND REPORTS* and *NEWS*. In regard to articles, the Journal is in a fortunate position of receiving from the provincial associations a number of valuable papers. Unfortunately these meetings and the national annual meeting of the Association occur either in the spring or fall resulting in a large number of papers being received at one time and occasioning disappointment to some contributors of delay in publication.

The Journal is again indebted to Dr. Fraser Brockington, Professor of Social and Preventive Medicine, University of Manchester, England. In the past eight years, Professor Brockington has contributed articles quarterly presenting the development of public health in Great Britain and including in his articles references to medical care and social work. The Association has had the privilege of publishing in the Journal these quarterly letters over a long period of years and commenced their publication in 1933 through the cooperation of Dr. George F. Buchan. The Editorial Board would express to Professor Brockington the heartiest of thanks for this most important contribution to the Journal which he has so generously made during the past nine years. To Dr. Buchan, the Association again extends its thanks.

The cost of printing the twelve issues constituting volume 46, 1955, was $12,913.89, an increase of $830.76 over the previous year, although every possible economy was made. No charge is made against the Journal for editorial services or office space. The revenue for advertising amounted to $5,211.09 being an increase over the previous year of $668.09. The average circulation for the twelve months was 2,700 copies distributed as follows: British Columbia, 270; Alberta, 81; Saskatchewan, 281; Manitoba, 167; Ontario, 852; Quebec, 200; New Brunswick, 72; Nova Scotia, 277; Prince Edward Island, 43; Newfoundland, 14. This is a total of 2257 in Canada. In the British Commonwealth, United States and Foreign (including a large number of libraries and health departments) 458 copies were distributed monthly, making a total of 2715.

In order to permit of publishing fifty-six pages monthly, additional advertising support is being solicited. The Association can have further improvements in the Journal if an increased revenue can be obtained either from subscriptions or more advertising. The Board has considered on previous occasions the possibility of increased support through increased fees. It has

concluded, in the past, that as the Association's membership includes many who are maintaining membership in the Canadian Medical and Provincial Medical Associations, Canadian Nurses' Association, Canadian Hospital Association etc., it would not be expedient to increase the fees in the Association. If our present members would express their support of the Journal by maintaining a personal file of the Journal in their office or home, the circulation would be substantially increased and, in turn, the advertising revenue would be larger. The Journal is in every health department but the Journal is not fulfilling its proper role until each member has a personal copy and keeps it on file for reference. The twelve issues, approximately 600 pages, constitute an up-to-date text book of public health. The fees in each of the provincial associations include membership in the Canadian Public Health Association and the membership fees are small. Most of the provincial associations are providing the Journal without charge, through the support of their Provincial Department of Health, to the members of provincial public health branches or associations which carries with it membership in the Canadian Public Health Association. *The objective therefore is the enrolment of every public health worker in each province in the provincial health organizations and the supplying of the Journal to each member,* so that each may have a personal file of the Journal.

REPORT OF THE COMMITTEE ON MEMBERSHIPS

G. W. O. Moss, M.D., D.P.H.

IN 1955 there was a membership of 1,433 in the Association. This denotes an increase of nearly 300 in one year. The great majority of our members are residents of Canada and therefore they also hold conjoint membership in one of the Provincial Public Health Associations or Provincial Branches. There are eight such provincial or regional organizations from coast to coast.

There has been no change in the amount or manner of collecting membership dues. In general the fees are collected by the provincial organization which forwards two dollars per member to the national office, the amount collected over and above two dollars per member being retained by the provincial organization for its undertakings.

As there was nation-wide coverage by provincial or regional organizations for the first time in 1955, the national office closed its files on non-conjoint memberships except for foreign residents and residents of the Yukon, North-West Territories and Newfoundland where affiliation with a provincial association is not yet possible. The remaining non-conjoint national memberships were apportioned among the various provincial organizations depending on the place of residence of the member so that future billings might be made on the conjoint basis by the provincial association.

The Committee has continued the policy of assisting Provincial Associations in their membership campaigns and enrolments by supplying printed materials, such as application forms, membership cards and other literature.

NEWS

Federal News

First National Quinquennial Census in Canada

Although a census has been taken every five years in the Prairie provinces, the census in all provinces has been taken every ten years. Canada is growing so rapidly that it is now considered essential that a census be taken every five years. The Dominion Bureau of Statistics, which conducts the census, has reduced to a minimum the number of questions and has developed new equipment. Electronic procedures have been introduced which will reduce further the cost of census-taking and the time required. The census enumerator will ask six questions, name, address, sex, age, marital status and relationship to the head of the household. Three questions will be answered by the personal observation of the enumerator, and the nine questions will be recorded on a card approximately 7 inches square. Turning the card over, the enumerator will record similar information for another person. The pencil markings will permit a machine to punch a card in code, together with the description of the particular person. Each card will go through a succession of machines, capable of producing almost any desirable combination of census facts. The Dominion Bureau of Statistics is located in a new building in Tunney's Pasture on the bank of the Ottawa River,—the new centre for the government buildings. The training is in progress of some 265 commissioners responsible for the direction in districts corresponding closely to federal electoral ridings and 850 field supervisors. These officers will, in turn, train their own enumerators, 17,000 in number. This is approximately the same number as were required to count the population in 1951 and the population now is 15% higher. A preliminary report on the total population is expected in October and by January 15th, 1957, it is expected that the final population figures will be released. Two months later will come the data relating to the agricultural census, in which the number of questions has been reduced from 194 questions (1951) to 76 questions.

Dr. G. D. W. Cameron, Deputy Minister of National Health, Department of National Health and Welfare, Ottawa, headed the Canadian delegation to the World Health Assembly held recently in Geneva. Alternate Delegates: Dr. F. Burns Roth, Deputy Minister of Public Health, Saskatchewan and Mr. Hector Allard, Permanent Representative of Canada to the European Office of the United Nations, Geneva. Parliamentary Observer: Mr. S. R. Balcom, M.P. Advisers: Dr. Emile Blain, President, Association des Medecins de Langue Francaise du Canada, Montreal, P.Q., Miss Dorothy M. Percy, Chief Consultant in Nursing, Department of National Health and Welfare, Ottawa and Mr. M. G. Clark, Department of Finance, Permanent Mission of Canada to the European Office of the United Nations, Geneva.

British Columbia

Dr. J. A. Taylor, Deputy Provincial Health Officer, spoke on "Certain Aspects of British Columbia's Local Health Services" at the meeting of the Western Branch of the American Public Health Association in Salt Lake City, May 30 to June 2.

Miss A. E. Scott, Research Assistant, Division of Vital Statistics, is scheduled to speak to the Canadian Council of Crippled Children and Adults in Toronto on June 9, on "The Organization and Operation of the Crippled Children's Registry in British Columbia".

Alberta

The Honourable W. W. Cross, M.D., Minister of Health for the Province of Alberta, has announced that the province has accepted, in principle, the federal proposals in relation to hospital insurance. It is believed that the existing hospital insurance program in Alberta can be integrated into the federal proposals.

A new fulltime health unit was organized April 1, 1956, in the area around Wetaskiwin and Ponoka, Alberta. The new health unit is to be known as the "Wetoka Health Unit", and the headquarters to be located at Wetaskiwin. Staff members appointed to date include: Dr. S. P. C. Casey, Medical Officer of Health, formerly of the Grande Prairie Health Unit, Miss Blodwen Coglan, Senior Nurse, formerly of the Stony Plain-Lac Ste Anne Health Unit, Miss Margaret Fawcett, Staff Nurse, formerly of the Tulliby Lake Municipal Nursing Service and Miss Sophie Pawluk, Stenographer-Tech-

nician, formerly of the Minburn–Vermilion Health Unit.

Manitoba

With the new Liquor Act recently passed in Winnipeg, Manitoba has established an Alcoholism Foundation to curb the sale of liquor, to promote temperance education and to provide treatment and rehabilitation of alcoholics. The Legislature voted $50,000 to commence the work of the Foundation and has named as incorporators three leading clergymen, a physician and a Queen's Bench judge. The establishing of the Foundation followed the recommendation of the Bracken Inquiry Commission. Its work is to be administered by a board of governors of 27 members of which the deputy minister of health and the provincial psychiatrist are ex-officio members. The remaining 25, to be appointed by the Government include one member of the Manitoba Medical Association, one member of the Associated Hospitals of Manitoba, three clergymen and twenty from citizens at large, of whom at least ten have been or are interested in social work.

Dr. J. V. Deshaye has resigned as Director of the Red River Health Unit at Steinbach, Manitoba, to accept the directorship of the Thurston Mason Health District in Washington, U.S.A.

Dr. T. N. Hurley and Dr. R. A. Christie have returned to the Manitoba Department of Health and Public Welfare after completing post-graduate courses at the School of Hygiene, University of Toronto.

The Market Milk short course for milk pasteurization plant operators was conducted from May 7 to 12 inclusive, at the University of Manitoba under the direction of Dr. J. M. Nesbitt, head of the University's department of Dairy Science. Ten sanitary inspectors from the Manitoba Health department, 10 commercial operators and 3 institutional operators were in attendance.

Mental Health Week took on special significance in Manitoba this year as it was the first campaign in which the province had its own division of the Canadian Mental Health Association to assist in the program. An intensive public education campaign was conducted under the supervision of Miss Patricia Desjardins. Miss Desjardins reported that public enthusiasm throughout the province was evidence of a growing movement toward a more objective concept of the mental health problem. The first local branch of the provincial C.M.H.A. is now being formed in the City of Brandon.

The many friends of Dr. Maxwell Bowman, Director of Preventive Medical Services, Manitoba Department of Health and Public Welfare, will learn with deep regret that he passed away suddenly in his office on April 26th.

Ontario

Canada's first clinic for sex deviates will be opened in Toronto by the Ontario Department of Health and will be related to the University of Toronto. The clinic will be under the direction of Dr. Peter Thomson. A second clinic will probably be opened in London where it will operate in association with the University of Western Ontario. The new clinic, to be called the Forensic Medical Clinic, is being established at Queen's Park Crescent.

In its initial stage, the clinic will limit itself to diagnosis and treatment of sex offenders referred by the courts before sentencing. Later on, with expansion of staff and facilities, the clinic will handle sex deviation cases referred by probation officers, by the John Howard Society which takes care of men discharged from penitentiaries, and by the Elizabeth Fry Society which provides a similar service for women. Eventually the clinic will be able to accept cases directed to it by private physicians. An important phase of the clinic's operation will be the instruction of university students enrolled in medicine, psychology or social work.

Mr. R. K. Montgomery, C.S.I.(C), has resigned from the Owen Sound Health Department to join the Provincial Department of Health.

Professor A. W. A. Brown, O.B.E., is on leave of absence from the University of Western Ontario, for two years, to direct special entomological investigations under the World Health Organization at Geneva.

Three retirements of public health nursing personnel have been announced by the Ontario Department of Health's Division of Public Health Nursing. Mrs. Agnes Haygarth has retired as Director of Public Health Nursing, Hamilton Department of Health; Mrs. Jean Rhoten as Supervisor of Public Health Nurses, Temiskaming Health Unit; and Miss Mary E. MacIlveen, R.N., B.S., as Supervisor of Public Health Nurses, Peterborough Department of Health. Miss MacIlveen is now employed by the Ontario Department of Education as instructor in health education and nurse with Teachers' College, Toronto. Miss Annie Boyd and Miss Ethel Irwin have been appointed to fill the recently vacated posts in Hamilton and Temiskaming, respectively.

The annual meeting of the Canadian Tuberculosis Association was held in Niagara Falls, Ontario, at the Sheraton Brock Hotel, May 15–19. The theme of the meeting was

"Incomplete Victory" and the speaker stressed the needs of the current situation. The sessions were held under Dr. E. L. Ross, President. Dr. C. G. Shaver was elected President, E. A. Stevens, Honorary Treasurer and Dr. G. J. Wherrett, Executive Secretary.

Andrew J. Rhodes, M.D., F.R.C.P. (Edin.), Director, Research Institute, The Hospital for Sick Children, Toronto, Ontario, and Professor of Virus Infections, School of Hygiene has been appointed Director of the School of Hygiene, University of Toronto and Head of the new department of Microbiology. He will commence his duties on July 1.

The Ontario Water Resources Commission, which is to assume direction of a $2¾ billion water distribution and sewage disposal program in the province, will consist of five members. Chairman of the Commission is Mr. A. M. Snider of Waterloo. Other members are Mr. W. D. Conklin of Kingsville, Mr. J. A. Vance of Woodstock, Mayor R. M. Simpson of Arnprior and Mr. W. H. C. Brien of Sault Ste. Marie. Dr. A. E. Berry of the Ontario Health Department has been appointed general manager of the Commission and the permanent secretary is Mr. B. Larmour, who was research secretary of the Ontario Water Resources and Supply Committee, a predecessor of the new Commission. The Water Resources Commission will be responsible to the Public Works Minister. The act passed at the recent session of the Legislature establishing the Commission, gives it all the powers vested in a municipal corporation or local board in matters relating to the establishment, construction, maintenance, operation, improvement or extension of a waterworks system. It has been estimated that $2,400,000,000 will be required during the next twenty years to meet present and estimated needs as regards water supply and sewage disposal.

An Ontario Northern Railway car, converted into a chest x-ray clinic room by the Ontario Department of Health, is now touring northern Ontario. It is expected that 15,000 persons living in isolated communities will have chest x-rays. Organization of the project was undertaken by the Division of Tuberculosis Prevention with the assistance of voluntary workers in the areas to be visited, most of whom are members of district tuberculosis associations.

Quebec

A grant of $8,000 has been made to McGill University for studies relating to effects of exposure of radioactive strontium. This study is important from a public health viewpoint in determining the effects of radioactive fall-out from a nuclear weapon explosion and to discover the possible effects on humans and animals of effluents from nuclear power stations.

At the Royal Edward Laurentian Hospital a grant of $4,535 has been made for study of new aspects of tuberculosis control.

A Child and Maternal Health grant to Montreal Children's Hospital of $4,950 will be used for research on blood clotting factors in premature and full-term infants.

On April 21, the new Poliomyelitis Vaccine Building of the Institute of Microbiology and Hygiene, University of Montreal, of which Dr. Armand Frappier is Director, was formerly opened by the Honorable J. H. A. Paquette, M.D., Minister of Health of Quebec, Premier Maurice L. Duplessis and the Honorable Paul Martin, Minister of National Health and Welfare, Ottawa, at Rapides de la Prairie.

Nova Scotia

On February 16, 1956, the Town of Kentville, commenced the fluoridation of the municipal water system. It was the first town in Nova Scotia to install a modern water filtration plant. The Town Council's decision to institute fluoridation followed the recommendation of their Medical Officer of Health, Dr. S. E. Bishop.

The following nurses recently received their diploma in Public Health Nursing from Dalhousie University School of Nursing: Kathleen Bird, Beatrice Bourque, Anne Breen, Theresa Cleyle, Eleanor Graham, Lillian Grant, Virginia Hashem, Frances Hewitt, Evelyn MacKay, Helen MacKenzie, Patricia MacLeod, Florence Matheson, Grace Spicer, Mrs. Vera Wasson, Georgina Yuill.

Miss Helen MacKenzie was awarded the Lenta G. Hall Memorial Prize from the Registered Nurses Association of Nova Scotia.

Mrs. Joan Macaulay Somers, Public Health Nurse, has joined our staff and is at present in the Dartmouth area.

Newfoundland

Health Minister S. J. Hefferton announced the Newfoundland Government has taken steps to provide additional dentists to implement its children's health plan. He stated that five dental students are now at Dalhousie University under a special government-assistance scheme, introduced three years ago, by which the Government advances up to $1,000 a year per student. On his return, the new dentist in discharging his obligation must spend two years with the Government. Two such students will be available this year, two in 1957 and one in 1959.